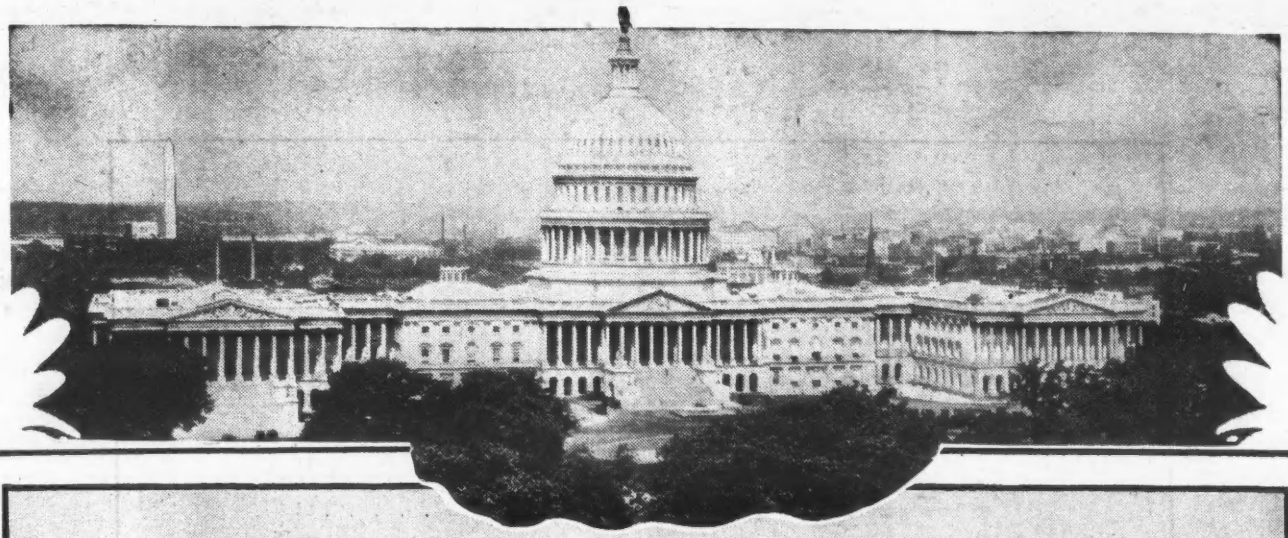


Supplement to The United States Daily Section II
VOL. VII, NO. 21 WASHINGTON, MARCH 28, 1932

Survey of the Activities

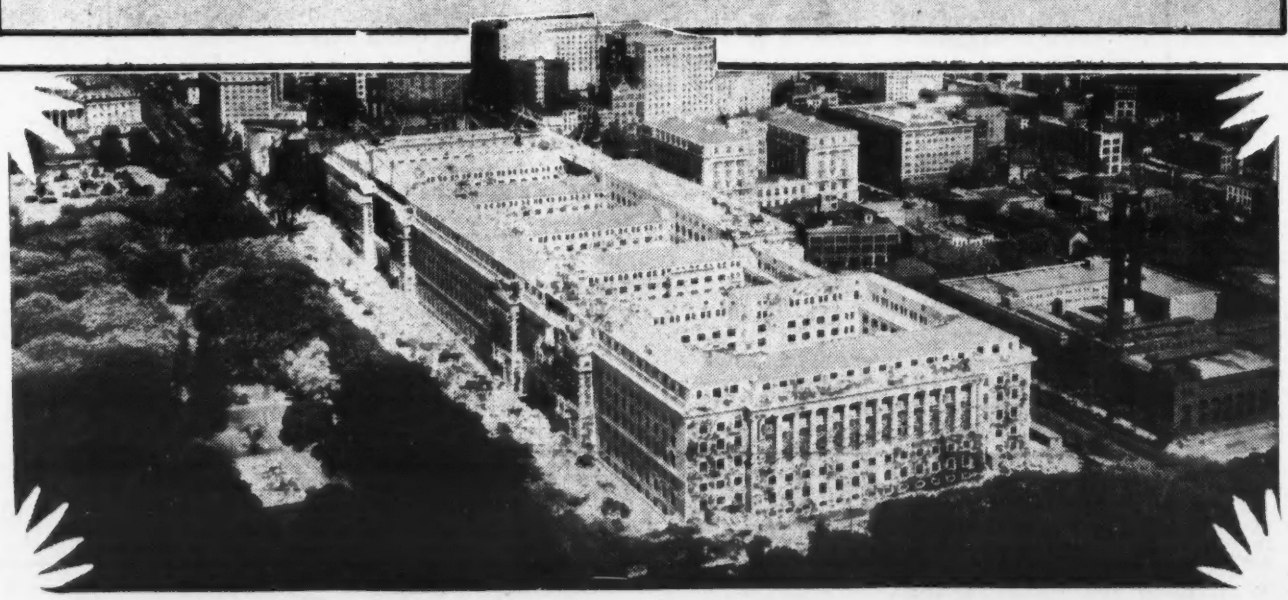
of the

DEPARTMENT OF COMMERCE

On the Occasion of the

Twenty-ninth Anniversary of Its

Organization



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WASHINGTON, MARCH 28 1932

Supplement to

The United States Daily

VOL. VII. NO. 21
SECTION 2

Survey of the Activities of the Department of Commerce on the Occasion of the Twenty-ninth Anniversary of Its Organization

Functions and Aims of the Department of Commerce

By Dr. Julius Klein, *Assistant Secretary of Commerce*

THE erection of the building which has now become the new home of the Department of Commerce represents an engineering achievement. The marvels of its construction have been set forth in print more than once since its completion. There is one point, however, which, it seems to me, has not been stressed as it might have been.

Within the walls of this structure, I believe there is much of the engineering spirit in the activity of the workers.

Possibly the aim could be defined as that of fact-engineering. In the mechanism of our business life, there is room for much more order, much more certainty, much more precision, than are discoverable today. In numerous respects the industrial and commercial mechanism comes far short of the standards which are commonly regarded as forming its true objective. Too much is left to chance. The hazy and the haphazard play too large a part. Where we should grasp essential realities, we are too prone to grope.

We have, however, now accumulated a vast fund of data about the economic resources and operations of America, but there still remain, in the field of our knowledge, altogether too many gaps and chasms—over the unsuspected edges of which (as we have learned) the unwary wayfarer may plunge to discomfiture or to disaster.

It should be the purpose of a business-fact-finding agency to fill in such chasms and to bridge such gaps. To put it a little differently, there are still too many unknown quantities—too many "X's," as the mathematician would say—in the plans and formulas of business. It is the modest aim of the Department of Commerce to eliminate as many of those "X's" as possible, and to lay the foundation for determining the nature and importance of the others that will need to be cleared up in the future. It can do this only by stressing the sovereign efficacy of facts, and by providing such pertinent facts promptly and in abundance. Its occupancy of the convenient and efficiently arranged new building will help greatly toward that end.

It will also, and in generous measure, help forward the collaborative spirit, not only among the Department workers themselves, but also among the thousands of business men who turn to the Department for fact and counsel.

It is already perfectly plain that this great new building will result in greater efficiency of operation for the departmental force itself—through the highly important factors of convenience, proximity, and systematic arrangement of space. Then the Federal building program as a whole, both in Washington and in the field, is making possible great savings in rentals, since the Government has paid enormous sums in the past to the owners of private buildings occupied for official purposes all over the country.

A great many conferences are held at the Department of Commerce—gatherings of business men, consumers, and other interests that come together with the purpose of devising measures to improve commercial practices and operations. The Department works in close cooperation with about 70 committees—representing a variety of interests in the American business world. Every so often they come to Washington to talk things over with us.

In the old headquarters of the Department at 19th Street and Pennsylvania Avenue, there were no adequate facilities for holding such meetings. Opposite the main entrance of the new building, however, is a large conference room that will seat 1,000 persons—with smaller conference and committee rooms adjacent. We feel that this new auditorium for conferences is going to be one of the most vital spots in the new building. This room has already been used to excellent advantage by such bodies as the National Association of Chamber of Commerce Secretaries, the President's Conference on Home Building and Home Owning, and a group engaged in the study of marketing. Then there have been a series of conferences on ways of improving retailing. Our new home promises to be something of a headquarters for profitable genuinely productive meetings and discussions by all the elements in American business—a place where the humble local retailer as well as the great "Mogul" of American industry can freely talk about what he thinks and feels.

The building embodies, in fact, an ideal of the proper and most profitable relationship between government and business. That ideal is absolutely the reverse of paternalism; it embraces no element of dictation or unwelcome meddling by governmental authority. It is, on the contrary, simply the aim of earnest, energetic, and frank cooperation—steady mutual helpfulness—the free interchange of ideas, facts and counsel.

In this Department of Commerce building, the business men who are "at grips" with all the practical commercial problems can state precisely what they expect in the way of collaboration from those who are striving to serve them through the medium of government. They can outline their special needs, with the assurance that a diligent effort will be made to satisfy them.

I am convinced that the commercial ideal which finds expression in this new building, and in the activities within its walls, is one of deep significance for the future of all American business.

By Robert P. Lamont
Secretary of Commerce

The wisdom of Congress in providing a modern structure to house the activities of the branch of the Government devoted to the commerce of the Nation has been borne out in the short time we have occupied this building.

Greater efficiency has already been registered in many directions, one of the most noteworthy of which has been the substantial gains made by the Patent Office in reducing the number of pending cases by more than 8,000 in a period of two months, due in part to proper facilities for carrying on such work.

The Department gratefully acknowledges the splendid cooperation it has received from the publishing world in expediting the delivery of current facts and figures to business and the general public.

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Origin and History of the Department and Its Branches

By Edward W. Libbey, *Chief Clerk, Department of Commerce*

ESTABLISHED by Act of Congress on February 14, 1903, as the Department of Commerce and Labor, under George B. Cortelyou as first Secretary (on Feb. 16), the work of organization of the Department was begun on March 16 of that year. The present month, therefore, celebrates its 29th birthday.

With the exception of the Bureau of Standards, which will remain at its own location on Connecticut Avenue, and certain temporaries of the Bureau of Census, the Department is now in its new home, the magnificent monumental building facing on Fourteenth Street. The Radio Division, according to present plans, will move into the new home about June 1.

The bureaus, divisions and other agencies of the Department have been grouped in the new building with as much attention to efficient arrangement as the available space and special needs will permit.

As to the way the Department is using the building, and the legal basis of the various bureaus, it is interesting to note the following facts:

In the middle group are the general executive and administrative functions, as represented by the office of the Secretary, the Assistant Secretaries, the solicitor, and the chief clerk's forces. On the top floor is specially designed skylighted space for the library. In the basement a large cafeteria, with the necessary kitchens, is provided. A large conference room opposite the main entrance is capable of seating 1,000 persons, while smaller conference rooms have also been provided in the same vicinity. Such general services as telephone switchboards, telegraph room, mail room, multigraph and mimeograph room are likewise allocated to this section. In the basement are provisions for the various mechanical shops, garage, and file storage.

The more compact bureaus and services of the Department are also assigned to the central part of the building. These include the Aeronautics Branch, the Radio Division, and the Bureaus of Foreign and Domestic Commerce, Lighthouses, Mines, Fisheries, Navigation and Steamboat Inspection.

The south rectangle of the building is assigned to the Coast and Geodetic Survey and the Census Bureau. Basement, first and second floors have been specially designed to meet the needs of the engineers, technicians, and the mechanical plant of the Survey. Upper floors have been designed for the Bureau of the Census, where their statistical services will have ready access to the centrally located bureaus by corridors linking the south and central wings. A mechanical laboratory for construction of statistical machinery is given the Census Bureau in the basement.

The north rectangle is assigned exclusively to the Patent Office. This structure from top to bottom is built to fit the special needs of this service as developed by a close study of its technical, legal, administrative, and public-serving functions. It has many special features. One of the most attractive to the public will be the grouping of all public-serving units on the ground floor. These units, such as copy sales, cashier, mail, application, assignment, manuscript, and photostat, are also grouped with direct relation to the flow of work between them. The most impressive interior will be the spacious, high-ceilinged public search room, record room, and library, grouped on the first floor at the northwest corner. Executive and judicial activities are grouped on the third floor, with special provision for hearing chambers, anterooms, and executive groups.

The examining corps is assigned to the four upper floors. It is planned to have semiprivate space for each examiner through cubicles of clear glass and steel, with ample space on the open side for a private corridor and his group of patent files. A standard arrangement has been worked out to meet the needs of the normal examining division, consideration being given to factors of convenience, supervision, light, privacy, quietness, and future expansion.

In the basement of the Patent Office rectangle, which is carried throughout the entire building and the courtyard, special steel stacks of two or four stories height are provided to care for the steadily accumulating official records, books, and the salable printed copies of the American patents.

The bureaus which make up the Department, briefly, owe their legal origin to the following legislation:

Aeronautics Branch.—By the Air Commerce Act of May 20, 1926, the promotion and regulation of civil aeronautics was vested in the Department of Commerce, under an assistant secretary. This work is performed under what is now known as the Aeronautics Branch.

Radio Division.—In 1911 the first Federal statute dealing with radio simply required that ocean steamers be equipped with apparatus and operators. The Radio Act of 1927 set up the Federal radio service as a separate division and attached it to the Department of Commerce.

Bureau of Foreign and Domestic Commerce.—The Bureau of Statistics and the Bureau of Manufactures were consolidated in 1912 under the general name of the Bureau of Foreign and Domestic Commerce. The former—the Bureau of Statistics—was then nearly a century old, having been created by the law of July 28, 1830, but constituted a separate unit under the Treasury Department by act of Congress, July 28, 1866. The Bureau of Manufactures was created on February 4, 1903, and at once (on July 1 of that year) transferred to the new Department of Commerce.

Bureau of the Census.—The first "enumeration of the population" after the establishment of our present form of government was made in 1790. Beginning with the census of 1800 the Department of State had general supervision of national census taking, until 1849, when the Department of the Interior was created. This Department was

responsible for population enumeration until July, 1903, when the Census Bureau was transferred to "Commerce."

Bureau of Standards.—The Secretary of the Treasury was directed (by a Senate Resolution of May 29, 1830) to have examination made of the weights and measures in use at the "principal customhouse of the country." This was the real beginning of the work of the Government in exact measurements which culminated in the establishment, on July 1, 1901, of the National Bureau of Standards, as an independent bureau of the Treasury Department. When the newly created Department of Commerce began to function on July 1, 1903, "Standards" was transferred to it.

Bureau of Fisheries.—A Commissioner of Fish and Fisheries was authorized and appointed by act of Congress on February 9, 1871. The Commissioner acted directly under congressional supervision until, in 1903, the Bureau of Fisheries was "erected" under the Department of Commerce.

Bureau of Lighthouses.—As early as August 7, 1789, Congress authorized the maintenance of lighthouses and other aids to navigation. The work was carried on under the Treasury Department until July 1, 1903, when it was transferred to the Department of Commerce. The Lighthouse Board, created in 1852, supervised the service until July 1, 1910, when the Bureau of Lighthouses was established.

Coast and Geodetic Survey.—Organized in 1807 (Act of February 10) the Coast and Geodetic Survey functioned for two years under the Navy Department. From that time on, until July 1, 1903, it was under the Treasury. When in that year, the Department of Commerce was organized, the Survey was transferred to it.

Steamboat Inspection Service.—The first Federal legislation designed to safeguard the lives of passengers on steam vessels was enacted by Congress on July 7, 1838. It was not until 1852 (August 31), however, that the Steamboat Inspection Service was established as a branch of the Treasury Department. On July 1, 1903, the Service was transferred to the newly organized Department of Commerce.

Bureau of Navigation.—This is one of the oldest bureaus of our Federal Government. In fact, it was really established by the third act of the First Congress, on July 20, 1789, providing for duties on tonnage of vessels. From time to time additional provisions affecting navigation were enacted until, on July 5, 1884, an act established the Bureau of Navigation. The administration of the navigation laws continued under the Treasury Department, until the establishment of the Department of Commerce, in 1903, and the Bureau was attached to the new Department.

Patent Office.—The first patent act was approved as early in our history as April 10, 1790. The Department of State exercised supervision over the patent service until 1849 when it was transferred to the newly created Department of the Interior, where it remained for 76 years. On April 1, 1925, the Patent Office was transferred to the Department of Commerce.

Bureau of Mines.—The testing of coal and lignites was provided for by Congress in 1904. Four years later the United States Geological Survey was authorized to investigate mine explosions. This authorization was followed, in 1910, by the establishment of the Bureau of Mines in the Department of the Interior. The Bureau was transferred to the Department of Commerce on July 1, 1925.

At present several other agencies dealing with business problems, working in cooperation with the Department, are housed in the new building.

President's Conference on Home Building and Home Ownership.—The Conference, announced by the President on August 30, 1930, for the purpose of determining the facts and factors in housing throughout the country and of developing a program for housing improvements based thereon, began on December 2, 1931, and lasted for three days. It was under the co-chairmanship of the Secretaries of Commerce and the Interior.

National Committee on Wood Utilization.—This Committee, established by direction of Ex-President Coolidge in 1925, was organized by Herbert Hoover, then Secretary of Commerce, who acted as its chairman until March, 1929. The Committee is composed of leaders in the wood industry. It is a cooperative undertaking between government and the industry, to secure better utilization of wood in order to make the growing of timber more profitable.

Federal Employment Stabilization Board.—This Board was created by Congress February 10, 1931, to consider "advance planning and regulated construction of public works, for the stabilization of industry and for aiding in the prevention of unemployment during periods of business depression."

Inter-American High Commission.—The United States Section of the Inter-American High Commission was created February 7, 1916, as the result of a recommendation of the first Pan-American Financial Conference in Washington May 24-29, 1915. The purpose is to aid in bringing about better and more uniform commercial and administrative relations between the American Republics.

Timber Conservation Board.—Appointed by the President in December, 1930, under the chairmanship of the Secretary of Commerce, with advisory committees of the industry. This Board is charged with the task of ascertaining facts of production, conditions and trends in the forest industry.

By Edward W. Libbey
Chief Clerk, Department of Commerce

Both economy and efficiency have been associated with the transfer to the new building of the various activities of the Commerce Department formerly housed in widely separated sections of the city.

On the subject of economy, the housing of departmental functions under one roof, having in mind the rent saved from private buildings occupied on that basis and the release of Government structures to house other activities of the Government now in rented buildings and badly in need of space, approximates $500,000 annually.

Efficiency is characterized by the opportunity to bring about staff consolidations, to coordinate duplicating work, to unify custodian, messenger service and telephone communication, and the elimination of the great waste of time formerly necessary when officials of one unit frequently had occasion to travel several miles in order to personally confer with departmental representatives located in other buildings.

The esprit de corps of the Department has been manifestly improved with the availability of modern office facilities.

While it is difficult to express improved efficiency on a dollars and cents basis, I think that a conservative estimate of that factor will approximate an additional amount equal to that actually saved from the standpoint of rentals.

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Aeronautics Branch

By Col. Clarence M. Young, *Assistant Secretary of Commerce for Aeronautics*

UNDER the Air Commerce Act of 1926, the Secretary of Commerce is charged with the duties of promoting and regulating air commerce. The details of this work are carried out by the Aeronautics Branch of the Department of Commerce.

The Aeronautics Branch is divided into three major parts as follows: The Air Regulation Service, the Airways Division, and the Aeronautic Development Service. The three officials in charge of these respective units are responsible to the Assistant Secretary, and with the latter as chairman they also constitute the membership of the Executive Board of the Aeronautics Branch which formulates all policies affecting the present activities and future plans of the branch.

The Air Regulation Service carries out the details of the regulatory powers vested in the Secretary of Commerce by the Air Commerce Act. The purpose of the Air Regulation Service is twofold: (1) To insure that all flying operations over which it has jurisdiction are conducted in airworthy aircraft piloted by competent airmen, and in conformity with standard air traffic rules; and (2) to foster the development of air commerce through the safe and reliable operation of such aircraft and airmen.

Under the Director of Air Regulation there are three main divisions: The Inspection Service, the Licensing Division, and the Engine Testing Section. The work of the Inspection Service is carried on by a corps of supervising aeronautical inspectors, aeronautical inspectors, airplane inspectors, engineering inspectors, school inspectors and air line inspectors. The Licensing Division is further subdivided into a Medical Section, a Registration Section, a Legal Section, an Accident Board, and an Engineering Section.

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The Director of Air Regulation and his staff are primarily concerned with the construction and operation of civil aircraft in all its phases. By determining and enforcing definite standards of safety, this organization has established and maintained public confidence and thereby played an important part in the phenomenal growth of air commerce and of the aircraft industry.

The establishment and maintenance of aids to air navigation are carried on by the Airways Division, which is organized into four sections—Surveys, Construction, Communications, and Radio. The Survey Section determines airway routings, selects sites for beacons and landing fields, and concludes all negotiations for licensing these sites and for conditioning the fields for use by aircraft. The Construction Section arranges for the purchase and shipment of all lighting equipment and supervises its erection and installation under contract or by Airways Division field forces. The Communications Section selects, establishes, and supervises the operations of airways weather reporting stations and airways communications stations. The Radio Section designs, procures, and supervises the erection and installation of radio equipment for communications stations and radiobeacons.

The Aeronautic Development Service of the Aeronautics Branch embraces all activities of the Department of Commerce in connection with assisting communities in the selection and development of airports, the rating of airports, the promotion and correlation of aeronautic research, the publication and dissemination of aeronautic information, the publication of air-navigation maps and airway bulletins, and the general promotion work of the department looking toward the development of civil aeronautics.

These various activities are coordinated and supervised by the Director of Aeronautic Development, who is directly responsible to the Assistant Secretary of Commerce for Aeronautics. The service is divided into an Aeronautic Information Division, an Aeronautic Research Division, an Airport Section, an Airways Mapping Section, and Special Research Committees.

The Aeronautic Information Division is further subdivided into an Editorial Section, a Statistics and Distribution Section, an Airway Bulletin Section, and an Aeronautics Reference Library. As the contact office between the Aeronautics Branch, the aeronautic industry, and the general public, this division is charged with many of the promotion duties covered by the Air Commerce Act of 1926.

The research work of the Aeronautics Branch is handled through the Aeronautics Research Division organized at the Bureau of Standards with the following sections: Radio, Lighting, Aircraft-engine, Wind-tunnel, and Engineering.

This work has to do with increasing the safety, reliability and comfort of air transportation, and is directed primarily toward obtaining data required in connection with the determination of the airworthiness of aircraft and suitable requirements for regulations relative thereto, and the development and improvements of aids to air navigation. The results of this work are made available to the public through special printed reports, Aeronautics Bulletins and the Air Commerce Bulletin.

The Airport Section is the point of contact between the Aeronautics Branch and the private and public airports of the country. The work of this section includes conferences with States, counties, municipalities, and civic and trade organizations desiring assistance in the selection of airport sites and requesting information regarding the requirements for the development of suitable airports. A small staff of airport specialists are available for this service, which is rendered without charge upon request. These specialists urge the importance of having experienced engineers make comprehensive studies for airports, but do not render this engineering service. Airports are rated, if their owners request it, on general equipment and facilities, effective landing area and aeronautic lighting equipment.

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Another important activity of the Aeronautics Branch is the preparation of maps for air navigation, a function carried on by the Airways Mapping Section. Two types of maps are published—strip maps and sectional airway maps. Each of the strip maps covers an area about 80 miles in width and from 200 to 400 miles in length. Maps of this type have been published since the organization of the section. More recently the Airways Mapping Section has started work on a series of sectional airway maps, each of which covers an area within two degrees latitude and six degrees longitude. This series eventually will chart the entire United States with 92 maps.

The Aeronautics Branch has organized a number of special cooperative research committees under the chairmanship of the Director of Aeronautic Development for the purpose of investigating and reporting on certain outstanding problems. The names of these committees follow:

Committee on Airport Traffic Control; Committee on Airport Drainage and Surfacing; Committee on Airport Zoning and Eminent Domain; Fact-finding Committee on Control of Airplane Hangar Fires by Automatic Application of Water; Liaison Committee on Aeronautic Radio Research; Special Committee on Air Space Reservations, and Committee on Air Marking.

In all of the activities of the Aeronautics Branch, the underlying principles are cooperation with the industry and service to the public.

The New Department of Commerce Building

This structure, recently occupied, covers three full city blocks. It occupies a land area of nearly 8 acres and contains 36 gross acres of floor space. It is 7 stories in height. Under its roof 5,000 employes of the Department of Commerce are concentrated, belonging to various units which formerly were housed in 13 different buildings, located at widely separated points in the City of Washington. The only unit of the Department for which no provision has been made in the new building is the Bureau of Standards which is located several miles away from the center of the city in order to safeguard its highly sensitive scientific instruments and devices from traffic vibrations and similar difficulties. The building is arranged in three general sections, a very large central section and a north and south wing.

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Radio Division

By W. D. Terrell, *Director of Radio*

THE radio service of Department of Commerce was created on July 1, 1911, when the first radio law, enacted June 24, 1910, became effective. As this radio legislation was applicable only to the marine service the control or enforcement of the law was placed under the Bureau of Navigation. The service made its beginning with two enforcement officers, one stationed at New York, who had the responsibility of enforcing the law on the Atlantic Coast, the other stationed at San Francisco, who had similar responsibility on the Pacific Coast.

A little later during the same year a third man was appointed and stationed at New Orleans, La., having jurisdiction over the Gulf.

The activity of these inspectors was confined to the inspection of radio equipment on American and foreign vessels leaving our ports to ascertain if the radio apparatus was being maintained in good working order. The law required that all American and foreign vessels clearing from our ports carrying 50 or more persons and running a distance of 200 miles or more between ports must have efficient radio installations. The inspections were to determine the efficiency of the apparatus.

During the following year, 1912, the third radiotelegraphic conference was held in London to amend the Berlin Radiotelegraph Treaty and on July 23 of the same year an act of Congress was approved to amend the Act of June 24, 1910, to cover cargo vessels, to require an auxiliary source of power and an efficient means of communication between the radio room and the bridge and two or more persons skilled in the use of radio apparatus on vessels carrying 50 or more persons running a distance of 200 miles or more between ports. The act was extended to include the Great Lakes.

On Aug. 13, 1912, an act to regulate radio communication was approved. Under this act radio stations were required to obtain licenses and licenses were required for radio operators. The act also provided for the use of the wave length of 200 meters and below by amateurs.

This extension of control over radio which was broader than that exercised by any other country at that time made it necessary to increase the inspection force. Under this reorganization the United States was divided into nine districts with headquarters at the principal seaport cities . It also became necessary to establish an office in the Bureau of Navigation, Department of Commerce, to give special attention to the direction of the field service and handle the technical problems which were then beginning to arise in connection with the licensing and operation of radio stations and radio operators.

Up to this time radio transmitting stations used practically any wave length they desired, any call letters they considered appropriate and the most of the operators employed had formerly been either telegraph operators or cable operators. Practically all of our operators used the American Morse Code while the operators of other countries used the International Morse Code.

Because of the limited use made of radio there was no pressing need for any further legislation until broadcasting started in 1921. With the advent of broadcasting it became increasingly difficult to apply the laws of 1912 to this new means of communication. In 1922 the First National Broadcasting Conference was held in Washington. This conference was called by Secretary Hoover for the purpose of planning for this newly-developed service to insure its successful growth, to utilize it to the best advantage possible and to devise a means of providing for it suitable wave lengths or frequencies. Subsequently three other radio conferences were held, one in 1923, one in 1924, and one in 1925. Each succeeding conference attracted a larger group of people and presented more difficult problems because of rapid expansion of this new service.

With the passage of the Radio Act of 1927 the licensing of radio stations was placed under the jurisdiction of the Federal Radio Commission and the radio service of the Bureau of Navigation became a separate division under the direct supervision of the Secretary of Commerce at which time it was placed in charge of the Chief of the Radio Division.

Under authority of the Act of 1910, amended in 1912, the Radio Division continues its inspection work of all American and foreign vessels clearing from our ports. This is one of the most important duties of the Radio Division having as its purpose the assurance of efficient radio apparatus on shipboard in charge of skilled operators, both of which are necessary for the proper protection of life and property.

Under the Radio Act of 1927 the Radio Division continues its field activities embracing the examination and licensing of radio operators; inspection of all transmitting radio stations; making field strength surveys to obtain information as to the service range and interference range of stations; monitoring radio stations to determine if they are maintaining the frequencies, or wave lengths, assigned to them by the licensing authority which aids in preventing interference between all classes of radio transmitting stations in this country and the principal radio stations in foreign countries which affect the service in this country; making investigations of violations of the radio laws and regulations of the Federal Radio Commission and the Secretary of Commerce; investigating reports of interference or unsatisfactory service, making complete engineering surveys of radio transmitting stations in connection with the applications for radio station licenses; furnishing technical information to interested persons on radio subjects coming under the jurisdiction of the Radio Division.

Under the Washington International Radiotelegraph Conference of 1927 the Division performs such duties as affect radio operators and radio stations on shipboard and handles international radio telegraphic accounts.

The Radio Division is supplied with eight test cars. These are large automobiles fitted with special bodies. They resemble a large hospital ambulance. In these cars there is carried measuring apparatus to measure the wave lengths, or frequencies, of radio stations and to measure the power of stations. They also carry the necessary equipment to give code tests to applicants for radio operators' examinations. These cars travel all over the country and much of the work is performed at night. Two men are usually carried, one to drive the car and the other to make measurements.

The Radio Division maintains offices in the following cities: Boston, Mass.; New York, N. Y.; Philadelphia, Pa.; Baltimore, Md.; Norfolk, Va.; Atlanta, Ga.; Miami, Fla.; New Orleans, La.; Dallas, Texas; Los Angeles, Calif. San Francisco, Calif.; Portland, Oregon; Seattle, Wash.; Detroit, Mich.; Buffalo, N. Y.; Chicago, Ill.; Denver, Colo.; St. Paul, Minn.; Kansas City, Mo.; Grand Island, Nebr.

Bureau of Foreign and Domestic Commerce

By Frederick M. Feiker, *Director*

IN THE annual report of the Director of the Bureau of Foreign and Domestic Commerce, just published, is the following significant statement:

"'The definite record of firms reporting new business and savings directly resulting from the Bureau's work during the year amounts to $57,554,813, which is an increase of 12 per cent over the previous year. This record represents only 8¼ per cent of the number of firms for which the Bureau performed services and it is reasonable to suppose that if the records were complete there would be a very large addition to the concrete evidence of the value of our work to American business.'

"In another part of the report, the Director of the Bureau says that during the year the Bureau received 3,966,000 requests for service. In one week alone 86,000 requests were received.

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"Those who protest against Government interference in business do not have in mind the type of cooperative interference represented by the work of the Department of Commerce. Next March when business comes to the line to pay its annual taxes it should find some comfort in the fact that at least one department at Washington is giving the brand of cooperation that puts real money into the pockets of American industry."

This editorial from "Printers Ink", of New York, sounds the keynote of the purpose of the staff of men and women who make up the organization of this Bureau.

Business, under the stress of domestic as well as international trade problems, is calling on the Bureau of Foreign and Domestic Commerce for aid in meeting group and individual problems in many new ways.

Inquiries addressed to the Bureau afford an indication of the need for further organization and development of these services to business. Broadly, they may be catalogued into three divisions. First, there are the questions of deeper economic significance, including such problems as "Shall we locate branch factories abroad?" "What are the fundamental economic conditions underlying the development of trade and manufacturing in New England?" "What are the problems of competition between industries?" and scores of others.

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To meet the demand raised by this type of questions the Bureau is staffed with men of fundamental economic training whose knowledge of economics is supplemented by the experience of men drawn from trade and industry.

There is pride, on the one hand, on the part of some of our largest business establishments and institutions of learning that their men have been chosen as members of the Bureau staff; and, on the other hand, it should be a source of gratification that this service attracts and holds men of experience who, trade by trade and industry by industry, are the special representatives of business.

The second group of inquiries in the domestic field is concerned with the management problems of business. The Bureau of Foreign and Domestic Commerce becomes a clearing house whereby the best practice of the individual becomes the common practice of all.

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Some measure of the value of this work is obtained by reviewing the report of the Superintendent of Documents. This report shows that business men bought, during the year 1930 (the latest year for which figures are available), 145,283 publications prepared by the various divisions of the Bureau of Foreign and Domestic Commerce. This does not include the regular subscriptions to the Bureau's two business magazines—"Commerce Reports", published weekly, and "The Survey of Current Business", issued monthly. The facts in these periodicals, which are distributed to more than 12,000 subscribers, are, moreover, the basis for hundreds of trade and technical articles issued by the current periodical and business press. Also, each day, news of the commercial world is released immediately for publication in the daily press—probably the most complete commercial reporting service known.

The Bureau, working on specific problems with advisory committees of trades and industries, is enabled to provide, through fact-finding studies, material which the trades and industries themselves may interpret for the benefit of the group and of the individual. More than 500 organizations are associated in this way with the work of the Department in all the major fields of industry and trade.

The third class of inquiries falls under the head of problems of business which may be said to lie in the field of elimination of waste in both production and distribution. This is the pioneeer field for the next great advance in American trade and industry. Just as, 25 years ago, technical research became the foundation stone of enormous advance in such industries as the electrical, chemical, and more recently the textile group, so now just ahead lies the opportunity for a kind of thinking with regard to business which economists and the statistician call Commercial Research and which, broadly is the tool for economic planning.

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It is evident from the requests that cross the desk of the Director of the Bureau of Foreign and Domestic Commerce that economic planning in the United States, to be practicable, will consist of setting down in a realistic way the fourteen or fifteeen practical objectives for an industry—the setting up of objectives whereby the industry and the Bureau become partners in a planned program for fundamental industrial development. The men in the Bureau bring to the problem the sense of direction of the trained investigator; the industry, through its leaders in organized trades and by special committees, will find its opportunity in applying the principles developed through such collaboration.

The pressure for acquiring facts upon which to base policy in certain fields of trade and commerce is very real. In the field of management control of manufacturing and sales costs, or market surveys, or sales and merchandising methods, lies an uncharted opportunity for the reduction of wastes which is of direct benefit to business and consumer, in preventing loss through failure, and in reducing costs. These practical objectives are carried out by cooperation with industry.

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The Bureau of Foreign and Domestic Commerce operates along three general lines, in so far as the business public is concerned. First, it is organized into eighteen so-called commodity divisions, dealing with the principal industriaal interests of the country. Each division, in charge of a specialist, keeps its respective industries in touch with trade conditions and developments with foreign markets distributing information in various forms and in great detail. Then there are eight technical divisions, dealing with "Commercial Intelligence", "Commercial Laws", "Finance and Investment", "Foreign Tariffs", "Economic Research", "Statistics", and "Foreign Construction". In the third place, the Bureau functions along regional lines. The Division of Regional Information collects and distributes information on general economic conditions in foreign countries. Finally, there are three divisions devoted to aiding the American manufacturer, wholesaler and retailer in matters of domestic commerce. The Bureau maintains fifty-eight offices in forty-seven foreign countries, which render valuabale aid to American commerce in connection with shipments abroad. Then there are thirty-four district offices in important commercial centers of the United States and arranagements with forty-eight chambers of commerce and other commercial bodies which act as representatives of the Bureau. Weekly, monthly and annual publications relating to foreign and domestic trade are supplemented by occasional publications dealing with particular markets, commodities or trade problems, both foreign and domestic.

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The Bureau publishes a number of periodicals, monographs and special bulletins relating to foreign and domestic trade. The list includes "Commerce Reports," an illustrated weekly journal presenting the commercial data collected in foreign countries by the representatives of the Departments of Commerce and State; "Commerce Yearbook," an annual in two volumes relating to industry at home and abroad; "Statistical Abstract of the United States," an annual compilation of statistics on all forms of activities and progress in the United States; "Foreign Commerce and Navigation of the United States," an annual presenting statistics of our trade with foreign countries and our noncontiguous territories; "Monthly Summary of Foreign Commerce," covering much the same field (only in less detail) as "Commerce and Navigation"; "Survey of Current Business," a monthly (with weekly and annual supplements), chiefly statistical, devoted to the basic trades and industries of the country; and "Domestic Commerce" (issued three times a month) presenting developments in distribution research and practice. Besides this, there are monographs under the general titles of Trade Promotion Series, Trade Information Bulletins, and special circulars.

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Bureau of the Census

By W. M. Steuart, *Director of the Census*

THE BUREAU OF THE CENSUS of the Department of Commerce, now the greatest statistical office in the world, represents the outgrowth and development of about a century and a half of periodical, and in recent years continuous, statistical inquiry on the part of the Federal Government.

Less than a decade after the American Colonies had achieved their independence, and within a year from the date of the inauguration of President Washington and the assembling of the First Congress of the United States, there was begun the first enumeration of the population of this country. Since then the census of population, required by the Federal Constitution, has been taken decennially. It was authorized for the primary purpose of apportioning Representatives in the lower House of the National Congress, but the census now supplies information on the activities as well as on the numbers of the American people.

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The first census, taken in 1790, related solely to population, and its scope, though very limited, was somewhat greater than that required by the Constitutional provision. The name of the head of each family was taken, together with the number of persons in the family, classified as free or slave. The free persons were further classified as white or other, the free white as male or female, and the free white males as 16 or over, or under 16.

Subsequently from time to time the field covered by the census has been still further enlarged, until it now embraces detailed inquiries along eighteen distinct lines, made at decennial, quinquennial, biennial, annual, quarterly and monthly intervals, in addition to various special inquiries ordered by the President or by Congress.

The first census was taken under the supervision of the United States marshals, of whom there were seventeen at that time; the actual work of enumeration was performed by marshals' assistants, of whom there were about 650. The enumeration began on the first Monday in August, 1790, and according to the law should have beeen completed in nine months. Double this time elapsed, however, before the returns were all made. The returns were made by the marshals direct to the President and by him turned over to the Secretary of State, who transmitted them to the printer. No clerical force was employed for compilation, verification or correction, and the results were printed without the explanatory text, percentages and detailed analyses which now accompany census statistics. The report of the first census is contained in an octavo volume of 56 pages. This little book, discolored and crumbling with age, is very rare indeed, the existence of only a few copies being known, two of which are in the Census Bureau and another in the Library of Congress.

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The expansion of the census work from 1790 to the present time is strikingly brought out by a comparison of this single 56-page volume, 8 by 8 inches in size, with the hundred or more volumes, having an aggregate of over 40,000 pages, now issued by the Census Bureau in the course of a decade.

The scope of the census has been almost continuously increasing, but undoubtedly the Fifteenth Decennial Census which is now being completed, will stand as the most comprehensive census ever undertaken in this or any other country. It covered population, agriculture, irrigation and drainage, unemployment, manufactures, mining and quarries, and distribution, and required the greatest data-gathering canvass ever attempted in history. More than 125,000 people were employed in this

Air View of Department of Commerce Building

The above photograph, taken with the camera facing westward, shows the Fourteenth Street front of the new building, with Pennsylvania Avenue at the extreme right in the foreground. The White House will be seen at the extreme right in the middleground. At the extreme left in the background appears the Lincoln Memorial and the new Arlington Memorial Bridge across the Potomac River. The roof of the Department of Commerce building is covered with almost 6 acres of tile, fixed in place with 2 tons of copper nails. The construction materials used in the building were gathered from many States. Among such materials are 2,000 carloads of limestone from Indiana, 150 carloads of granite, quarried in Connecticut and sawed, cut and milled in Massachusetts, 900 tons of marble from Missouri and 470 tons from Vermont, 860 tons of mankato stone from Minnesota, 35 tons of floor tile from West Virginia and 300 tons of wall and floor tile from Ohio, 10,000,000 common bricks from the District of Columbia, 1,500,000 face bricks and 200,000 gray bricks (for the boiler room) from Pennsylvania, 27,000 tons of terra cotta from North Carolina and West Virginia.

great task. In the population, unemployment, and agriculture censuses, a house-to-house canvass of the Nation was made by enumerators. In the new Census of Distribution, an establishment-to-establishment canvass was likewise made by a special force of enumerators who were trained for this work. Since the Census of Distribution is the first of its kind ever undertaken in this or any other country, much study and planning and preparation were necessary before it could be launched. Definitions had to be agreed upon concerning retailing, wholesaling, jobbing, and the many other businesses found in the field of distribution. Then the personnel had to be trained in those fundamentals.

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Some indication of the magnitude of this census may be obtained by considering the mass and variety of the schedules or questionnaires which the Census Bureau has printed and distributed. Of the main population schedules, 3,206,000 copies were printed. Of the individual slips, 8,765,600 were printed; of the preliminary family schedule, 4,000,000; of the absent family schedule, 265,000; for the non-resident family schedule, 350,000; of the unemployment schedule, with spaces for 60 names, 700,000. Of the main farm schedule, 15,450,000 were printed, the surplus over the actual number required to enumerate 6,000,000 farms, being used mainly for advance distribution to acquaint the farmer with Census of Agriculture questions.

In the taking of the Census of Manufactures, approximately 3,230,000 copies of questionnaires were printed. This includes a general questionnaire applicable to every industry, and a special questionnaire for each of 172 separate industries, a general questionnaire for mines and quarries, and a special questionnaire on the sand and gravel industries. The canvass of the Census of Manufactures was conducted largely by mail, followed up where necessary by personal visit by the field force of the Census Bureau.

For the new Census of Distribution covering wholesaling and retailing, the construction industry, and the hotel business, more than 8,000,000 questionnaires were printed. In covering the retail and wholesale business in cities of 10,000 population and more, there were two separate questionnaires, listed as long and short forms, totaling more than 3,000,000 while in the towns and localities of less than 10,000 population, an omnibus form was used which included both of these businesses. In addition to the special construction and hotel questionnaire, there were special schedules for various distributive agencies. There were 900,000 special questionnaires for the automotive business, 10,000 for the creamery business; 250,000 for retail drug; 600,000 for retail grocers; 500,000 for wholesale food; 5,000 for livestock; 10,000 for milk distributors, and approximately 2,000,000 for businesses of all kinds in small towns and in rural districts.

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Until 1900 the census office established for the taking of each decennial census and the compilation and publication of its results had been a temporary institution, going practically out of existence at the conclusion of its work. On July 1, 1902, under authority of an act of Congress passed in March of the same year, the census office became a permanent branch of the Department of the Interior, under the name Bureau of the Census. A year later it was transferred to the newly created Department of Commerce and Labor, and since March 4, 1913, it has been a bureau of the Department of Commerce.

While one of the reasons for the creation of the permanent Census Bureau was the need of a nucleus of trained employes around which to organize the large force necessary for the taking of a decennial census, this need was not the only justification—nor, for that matter, the leading one—for the existence of a permanent bureau.

The establishment of the office on a permanent footing was the achievement of more than half a century of agitation, beginning in 1844, when a select committee of the House of Representatives, which had had under consideration a memorial on the errors of the census of 1840, that was presented by a committee of the American Statistical Association, reported that it knew of no way of avoiding such errors in future censuses "so easy and practicable as by the establishment of a Bureau of Statistics." In the decades following various committees, officials, superintendents of the census, and statistical organizations repeatedly urged upon Congress the advisability of making the office permanent.

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Improvement of the decennial census was the motive chiefly in evidence in all this agitation, and even at the present time is commonly thought of as constituting the chief advantage to be gained through the existence of a permanent bureau. From the first, however, those advocating the establishment of such a bureau have had other considerations in mind as well. In fact, the House Committee already referred to, recommended in its reports for 1844 and 1845, the establishment of a bureau which not only should take the decennial census, but should also coordinate the statistical work of all Departments of the Federal Government, and whose publications should include statistics relating to foreign countries.

These efforts on the part of statisticians, administrative officials and legislators finally resulted in the passage, in March, 1902, of the permanent Census Act, under the terms of which the Census Bureau was made a permanent instead of a temporary office. The various special lines of inquiry already mentioned as having been postponed until after the completion of the Twelfth Census work were assigned to the permanent bureau; and from time to time other duties have been devolved upon it by acts and resolutions of Congress or by direction of the President or the Secretary of Commerce.

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As a result of this development, the Census Bureau is now conducting not only the decennial census of population, agriculture, manufactures, mines and quarries, employment and distribution, but also carries on numerous other inquiries at intervals varying in length from ten years to less than two weeks. The principal inquiries of this character are the following: Decennial censuses of wealth, debt and taxation, of religious bodies, of transportation by water and of defective, dependent and delinquent classes in institutions; quinquennial censuses of agriculture, of central electric light and power stations, of street and electric railways, and of telegraph and telephones; a biennial census of manufactures; annual collections of statistics of births, deaths, marriages and divorces, and of financial statistics of States and cities; collection at monthly or quarterly intervals of statistics relating to cotton, hides, skins and leather, and leather goods, clothing, wool, and many other commodities.

Bureau of Standards

By Henry D. Hubbard, *Assistant to the Director*

THE BUREAU OF STANDARDS is a technical service laboratory for the Federal Government, but is serving all the State Governments as well, directly or indirectly. It serves as scientific and technical adviser for the Government departments. Its research and testing are of value both to the Government and to industry. The testing adds effectiveness to the work of practically every Government unit.

Congress gave the Bureau of Standards the custody of the standards, the authority to construct standards, and to compare these with the standards used in the measured control of the coinage, the precise surveys of our land and coast, the local inspection of trade weights and measures, the measurements of modern industry, and in experimental research both in the Government and industry.

Congress specifically authorized the Bureau to cooperate with State and local officials in the technical details of inspection service, to assure to the American people full measure in the countless transactions of daily trade. This the Bureau does through tests of the State standards, by personal consultations with local officials, formulation of model laws and regulations, publication of inspectors' manuals, and by national conferences at the Bureau, at which State Governments are officially represented, to discuss problems vital to their nation-wide service to the public. Through these activities a notable improvement is evident in the local inspection, resulting in increased assurance of justice in daily trade.

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Bureau test cars travel on a nation-wide mission of examining, testing, and certifying the master track scales and commercial track scales of State Governments, railroads, and industry. Upon the indication of these scales approximately four billions of dollars of freight charges are annually collected. The Bureau's tests of such scales assures all interests that the weighings will furnish a fair and just basis for the charges. This service is continuous throughout the year.

To set up standards for the ever increasing number of new kinds of measurements is difficult and calls for the utmost in science, technique and ingenuity. The task is made more complex by the growing demand for higher precision, for wider ranges, and for unnumbered special uses, each calling for some unusual research.

Besides the primary function of maintaining standards, Congress authorized the Bureau to solve problems arising in connection with standards, to test apparatus, to determine physical constants and the properties of materials. Congress has interpreted these functions by special provision for many definite lines of research within the Bureau's field.

The five kinds of standards: Measurement, constants, quality, performance, and practice may be illustrated by examples. The National Prototype Meter No. 27, our standard of length, is an example of a national standard of measurement, well established and efficient. A proposed standard now under consideration for world adoption is the standard of light constructed at the Bureau, consists of the radiation from a hollow enclosure at the temperature of melting platinum—a reproducible, accurate, scientific standard.

Standards of nature, measured values of characteristics of matter and energy, are the basis of physical science. The Bureau has determined many such items, and in turn uses them in establishing standards. For example, the ice and steam points of water define the fundamental interval on the temperature scale—the 0 degree and the 100 degree points on the centigrade scale.

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Standards of performance are illustrated by the measured values assigned to the pertinent factors affecting the efficiency of a machine or other device,—an aircraft motor, for example, as mentioned below.

Standards of practice involve the measured values of pertinent factors in a process or procedure—safe voltages, effective insulation, and the like. A typical standard of practice is the national safety code for electrical practice prepared under the auspices of the Bureau and now adopted as an American standard.

It is too little realized that precise measurements and standards are an important means to advance science and technology. Two examples will illustrate. Radio and aviation are based on standard measurements, for which it is the task of the Bureau to maintain the standards and compare these with the standards used in private enterprise. Safety in aircraft is a basic requisite. All new types of commercial aircraft engines before being put into interstate service must pass the tests of the Aeronautics Branch and these tests are made at the Bureau of Standards. In radio the standardization service is important. Precisely timed frequencies are broadcast by the Bureau to aid the broadcasting industry to rate and adjust their equipment to the standard frequencies sent out. The Bureau has recently maintained a constancy in radio frequency (waves per second) nearly a thousand times better than attainable a few years ago. These standard frequencies afford the broadcasting stations a means of keeping within the very narrow frequency range recently set up by the Federal Radio Commission. This means better control, better selection, and higher selectivity—better reception.

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Research for the Government yields important results. The durability of money paper was doubled by methods devised and applied by the Bureau of Standards in test runs, without increase in cost, methods which may be applied by the paper industry to the making of high grade bond and ledger papers. A parallel investigation of the permanence of papers disclosed to Bureau experts that the control of acidity was the vital factor in permanence, even when pure rag stock is used. Without acidity control within measured limits, the paper, even pure rag stock, would rapidly deteriorate.

This will illustrate that the strength of the Bureau of Standards as a research organization is its unique union of some hundred specialized sections each with an expert staff, cooperating where joint action is helpful on research problems. This combination has been built up through years of conscientious planning and effort. Industrial problems are best solved by cooperation. This is an era of cooperative research. Scores of cooperating committees of the technical and industrial interests work with the Bureau in planning its research activities. Such researches are directed to problems of concern to entire industries and to the public. Always they are of interest and concern to the Government.

The Bureau gave expert advice on the character of cement for the Hoover Dam and other massive concrete work of the Government. A cement which evolved the least heat in reaction with water was found desirable. Fifty samples were studied by the Bureau, and several superior brands were selected for further study, in part at the Denver laboratory of the Bureau of Standards.

Much testing has been done on structural materials—cement, concrete aggregate, brick, stone, and other materials—for Government building projects throughout the country. The present peak of Bureau work of this kind has not been equalled since the war.

The United States Bureau of Public Roads will not hereafter approve the use of any cement on any Federal-aid highways or other projects unless it has been tested in a laboratory inspected by a representative of the Bureau's Cement Reference Laboratory, and the equipment and operation of the former duly certified. The Cement Reference Laboratory is maintained jointly by the American Society of Testing Materials and the Bureau of Standards.

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Another example of technical service is for the Federal Specifications Board, of which the Director of the Bureau is chairman, and the Bureau staff holds 27 chairmanships of its technical committees and is officially represented on 65 of these committees.

The Bureau actively heads up the work of the National Screw Thread Commission established by Congress. The Director is ex-officio chairman of the Board. Active experimental work is conducted by the Bureau.

The Bureau cooperates in many ways with the National Advisory Committee through experimental research in the interest of aeronautics, involving the use of its wind tunnels, power plant laboratory, aeronautics instruments section, and its radio laboratories.

For the Post Office Department the Bureau furnishes technical advice, especially on labor-saving devices—stamp-vending machines, mail-metering devices, and the like. It rates stream-speed meters for the Geological Survey, the Reclamation Service, the Mississippi River Commission, the United States Engineer's office. These meters are rated in the Bureau's tank, 400 feet long, and recalibrated periodically to ensure high accuracy in the forecast of water supply, flood, drought, and height of rivers.

The Bureau's experts aided the Bureau of Engraving and Printing in the design, installation, and operation of a plant for producing paper money printing plates from the master plates by a new electrolytic process, adding service life by a chromium coating. Reports show that marked economies resulted from the installation.

An important laboratory research resulted in a new type of paper from three to five times as strong as the paper hitherto furnished for use in United States securities. The Bureau's process is now included in the Government's specification for distinctive paper.

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Much consulting and expert work has been done for the Supervising Architect of the Treasury, Post Office, and for the Architect of the Capitol, on standardizing heating equipment, the certification of steam radiators and heat insulating materials. It has also rendered expert advice on installations of air conditioning and ventilating equipment.

Aid was given the Government departments by tests of ball bearings, lubricants, gasolines, and automotive equipment, including ambulances. An experimental basis was reached through Bureau researches for the control of all purchases of gasoline for civil and military purposes of the Federal Government. Tests of gasoline are made for the Bureau of Mines for the Annual Survey of Gasoline.

An important service is being rendered by Bureau experts in reducing fire hazards in prisons and in the vessels inspected by the Steamboat Inspection Service, through tests of fire extinguishers and tin boiler plugs. Aid was given in connection with tests of fireproof safes, in the protection of aircraft hangars, and in fire protection of Government records. The work of the Federal Fire Council heads up at the Bureau, the Director being chairman of the Council, and the fire expert being the active executive in the survey of the occupancies of Government and recommendations for reducing fire hazards.

Some 6,000 clinical thermometers are tested each month for the United States Public Health Service Bureau and the Veterans' Administration for medical use, on the accuracy of which diagnosis depends. The radium of the country is bought, sold, and used on the basis of the Bureau of Standards tests and certified values of the radioactive strength of each specimen sold.

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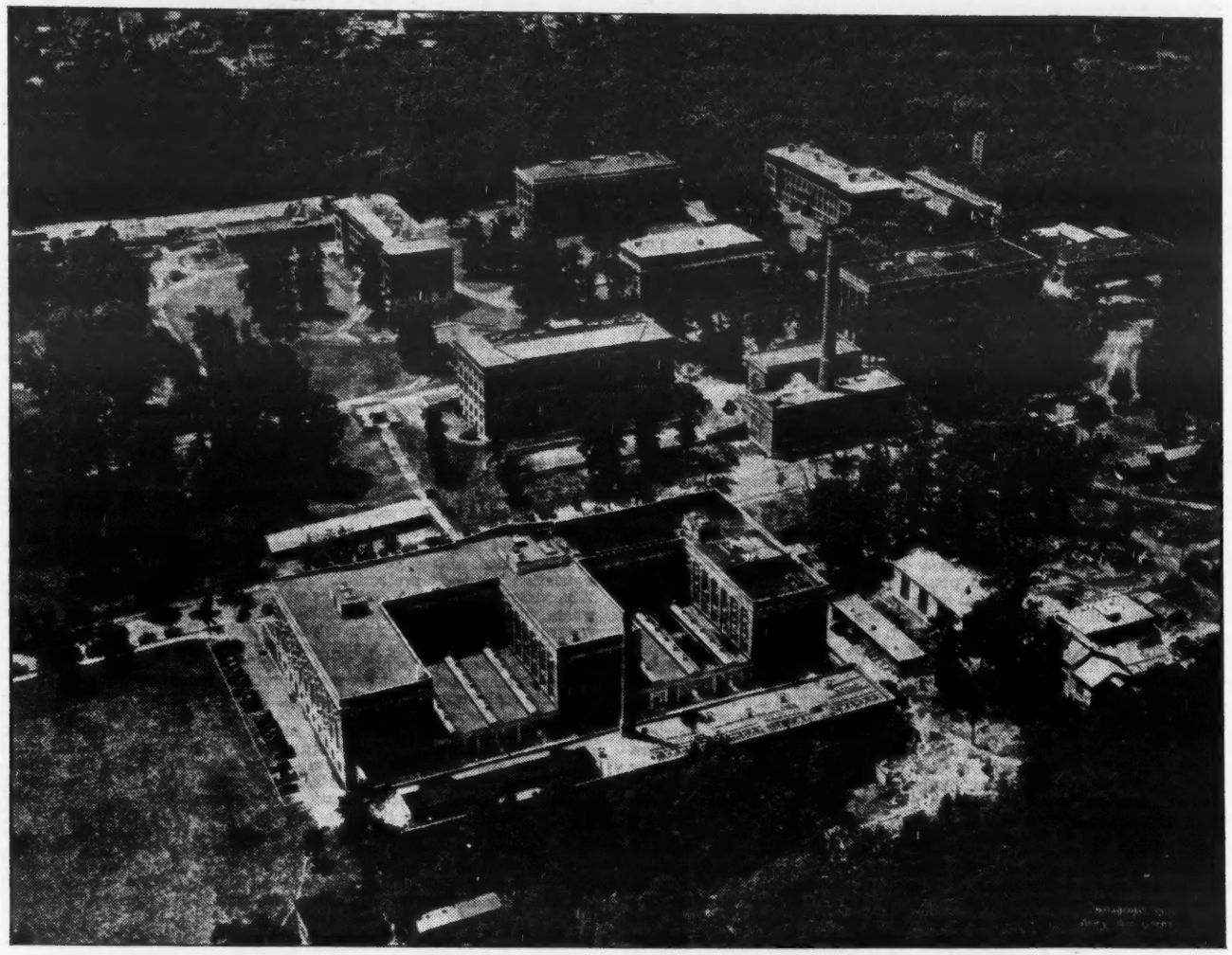
These few examples might be multiplied and still be inadequate to give a full picture of the service of the Bureau to other Government Departments, and in fundamental ways to the people of the Nation.

Space fails to even mention many important lines. Some 2,000 Bureau publications, however, report its activities in research and standardization. Four periodical publications are issued: The Journal of Research, the Technical News Bulletin, the Commercial Standards Monthly, and the Standards Yearbook. Besides these, research papers, circulars, miscellaneous publications are sold as separates by the Superintendent of Documents, as are the Commercial Standards and the Simplified Practice Recommendations.

The Commercial Standards group is active in projects for reducing the needless sizes and varieties of products, for establishing standards for industry, and for aiding the building and housing industry in fundamental ways. In general the Government lends its assistance, but the actions are taken by industry itself. The Bureau is the service institution for the Government and the public. The consumer is represented by the work on the certification plan, under which firms agree to furnish, on request, commodities meeting the Government specifications, and by the work on the labelling plan which supplements the certification. These aid the consumer by assuring him that the goods he buys are at least equal to Government standard quality. Closely related is the work of preparing building codes, promoting city zoning, and issuing information of concern to the housing industry.

The Bureau of Standards touches American life at vital points, affecting justice in trade, efficiency in industry, accuracy in science, effectiveness in process and practice. Its apparently diversified functions are unified by the unity of method—research and standardization through precise measurements and standards. It helps to assure due quality in materials, satisfactory performance of machines and devices, and efficiency in technical operations and practice. It is recognized that standardization is an essential part of every well-ordered enterprise, and is a continuing enterprise—the modern means of applying new science to industry and through industry to human service. It is even more fundamentally true that all standardization to be effective or enduring must rest on research foundations.

Building Group Housing Bureau of Standards



All the structures shown in the above photograph taken by the Army Air Corps are occupied by units of the Bureau of Standards, the only branch of the Department of Commerce which is not accommodated in the Department's new building in downtown Washington. These buildings are located in a residential section of northwest Washington, several miles from the heart of the city. A location of comparative isolation is considered necessary for the Bureau because many of the scientific instruments and devices which it uses in its work are highly sensitive to traffic vibrations.

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Bureau of Fisheries

By Henry O'Malley, *Commissioner of Fisheries*

THE wealth of fish in our coastal waters attracted the early explorers to this continent. In fact a cod fishery existed prior to the establishment of the first permanent English colony in this country. When the Pilgrims applied for a charter for the Mayflower from King James of England they requested "leave to worship God according to their own conscience, and to catch fish." For 150 years the fisheries were "the corner stone of New England's prosperity" and they are still the most important natural resource of Alaska. They are of value in many ways—they are an important source of food and of products used in the arts and industries; they afford recreation to some 10,000,000 of our people, direct employment to about 500,000 persons as well as many more in allied industries such as shipbuilding, manufacturers of nets, lines, cordage, rubber clothing and sundry other articles employed on a large scale in the industry.

Our annual harvest of fish, shellfish and other aquatic products exceeds 3,500,000,000 pounds, for which our fishermen receive $123,000,000. In 1930, our canneries packed nearly 577,000,000 pounds of fish valued at $82,858,000; 80,000,000 pounds of fresh fish valued at $12,500,000 were put up in packaged form, easily prepared for the table; 139,000,000 pounds of fish were frozen; over 100,000,000 pounds were cured; and oil, meal and other fishery by-products were produced to the value of $24,000,000. Imports for consumption of fishery products were valued at nearly $51,000,000, and exports at $17,276,000. As illustrative of the importance of allied industries, purchases of commercial fishing gear it is estimated amounted to $7,000,000 and the value of fishing tackle chiefly for the use of the sportsmen at $25,000,000.

The conservation of a great natural resource such as the fisheries is a matter of the greatest national consequence, and is one of the most important functions of the Department of Commerce.

Conservation means the protection of the fisheries against overexploitation, and at the same time their use to the fullest extent consistent with the insurance of the future supply. The Bureau of Fisheries is a conservation agency to which the States look for guidance and help in conserving and replenishing the supply, and upon which the trade depends for information and assistance. It operates fish hatcheries and distributing stations in various parts of the country. Its primary functions are in the fields of biology and fish culture, and in the promotion of the economic use of the catch from ponds, rivers, lakes, coastal indentations, and the high seas.

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Employing the most advanced scientific methods developed in Europe and America, the Bureau's biologists apply themselves to the answering of practical and specific questions concerning the welfare and development of our fisheries.

What will be the probable yield in 1933 of the mackerel fishery of the Atlantic Coast which has been producing a yield valued to the fishermen at $2,400,000 in recent years?

Will the establishment of a dam and the construction of a ship channel at a particular point on the Tennessee River destroy the bass fishing and kill the mussel beds in that vicinity?

Why are the shrimp, which supply the $4,500,000 fishery of the Gulf Coast, so erratic in their appearance? Where do they go? Is the supply certain enough to warrant further investment in vessels and canning equipment?

How many adult salmon should be reserved from the commercial fishery at Karluk, Alaska, in 1933 to provide a maximum seeding of the spawning grounds of the Karluk River, thus insuring a maximum run in 1938?

What particular waters in Mobile Bay or on the coast of Georgia should be planted with oysters to increase the production of shell stock? How many bushels of seed per acre should be planted? Where should they be obtained, at what time of the year and in what manner should these operations be carried out?

The whole year's production of trout at a New York hatchery is dying from a strange malady. What is the disease, how can it be treated to save the present year's investment, and how can similar trouble be avoided in the future?

These are but random samples of the numberless questions the Bureau is called upon to answer, and for many of which it has already found practical solutions.

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The Bureau's diverse investigations provide the information upon which conservation steps may be based. In large measure, they are devoted to studies of important food fishes such as the salmons, haddock, lake fishes and mackerel, and of oysters, shrimp, and fresh-water mussels. The investigations reveal information regarding the life history and habits of the various species; the conditions of life in the water favorable or unfavorable to their development; and the effects of changes in conditions, such as those arising from pollution and from the distribution of eggs and young by tides, currents, and winds. They disclose such fundamental facts as the rate of growth, age at maturity, time and amount of spawning, habits of feeding, extent and direction of migrations, extent to which different species interbreed, natural enemies and so on. They also reveal wasteful practices in fishing methods and means for eliminating them. The Bureau gives attention to the development of aquiculture, improvements in fish-cultural practices, the pathology and nutrition of fishes, oceanography, and biochemical studies. The investigations are conducted not only at the Bureau's laboratories in Washington, but at biological stations located at Woods Hole, Mass., Beaufort, N. C., Fairport, Iowa, and Seattle, Wash. The Bureau operates a specially equipped steamer for coastal work and a number of smaller craft for inshore, lake, and river duty.

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Many factors have contributed to the difficulties of maintaining an adequate supply of fish in our waters. These include deforestation, reclamation of bottom lands, pollution, construction of dams and other barriers which prevent the migration of anadromous fishes such as the salmon and shad to their former spawning grounds, the construction of thousands of miles of good roads and the increased use of the automobile thus making it possible for our people to extend their fishing excursions into the next county, the next State, or across the continent. As a result greater and greater dependence has been placed on the artificial propagation of fish for restocking depleted waters and maintaining a supply in our streams and lakes.

The heaviest mortality among fishes, as with animals, occurs during early life. Artificial propagation is designed to eliminate the hazards during this period. A large percentage of the eggs collected by the Bureau for propagation are derived from fish caught by com-

mercial fishermen, thus obviating the total loss which would otherwise occur.

For its work the Bureau maintains more than 85 fish-cultural stations and substations distributed among 36 States, Alaska, and the District of Columbia; and their total output amounts to upward of 7,000,000,000 fish eggs, fry, and fingerlings each year. Four railway cars, especially constructed and equipped for transporting living fish from the points of production to the waters for which they are intended, are also maintained. These cars travel more than 150,000 miles each year. Cooperative work with private agencies, such as fish and game clubs, tends to enlarge the scope and importance of the Bureau's work, and additional stations and substations that will increase greatly the distribution of fish are being constructed from time to time. An important phase of the Bureau's work is the annual rescue of approximately 100,000,000 fishes that have become isolated in pools in the overflowed lands in the Mississippi Valley.

The several States also carry on fish cultural activities on a large scale. There are about 370 State hatcheries, employing over 1,000 persons expending more than $3,500,000 for the propagation of fish and producing an output in excess of 4,500,000,000. In carrying out its fish-cultural program the Bureau works in close cooperation with the various State agencies and with other Federal agencies such as the National Park Service, Forest Service and the Reclamation Service. Scarcely a year passes but what the Bureau supplies several foreign governments with stocks of eggs or fish to enable them to introduce some of our choice species into their own countries. The propagation and distribution of the more important food and game fish therefore consists of one of the most practical services rendered by the Bureau for the purpose of maintaining the supply in fishing waters.

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The fishing industry is largely individualistic, operations being conducted in a large measure by persons in out-of-the-way places eking out a bare living without capital for the conduct of scientific research and its application to their business. Because of this condition the Bureau of Fisheries has been in position to render exceptional service in the fields of technology, statistics and economics. For example, our market for fish oils has been severely depressed, many producers having been forced out of business at present price levels. At the same time we have been importing several million gallons of cod-liver oil because of its well-established richness in vitamins A and D. Investigations initiated by the Bureau two years ago have demonstrated the richness of several of the domestic fish oils in these vitamins with the result that domestic fish oils are rapidly taking the place, in a considerable volume, of cod-liver oil at a profit to the domestic fish oil producer, and the farmer who is buying such oils for feeding to his livestock.

The life of nets employed by our fishermen is relatively short, much of it not lasting for more than one or two fishing seasons. Investigations conducted by the Bureau in perfecting net preservatives have resulted in the development of net preservatives which will greatly lengthen the life of such gear. When one realizes that our fishermen expend about $7,000,000 per annum for fishing gear, the value of such experiments will be evident.

The technology of fishery products and methods is under continuous study. The purpose of this work is to improve methods, prevent waste, reduce the cost of fish to the consumer, increase the use of by-products and bring about the utilization of marine products not now utilized. Other technological investigations have revealed modern methods for the refrigeration of fish, the salting of fish in tropical climates, the utilization of shrimp waste, and improved types of containers for shipping shellfish. Engineering studies are made on the destructiveness of various kinds of fishing gear; and, where possible, new kinds of gear are being introduced to make fishing less destructive, or old methods are being improved. For example, the Bureau has developed the savings trawl which will allow unmarketable, immature, and undersized fish to escape, thereby conserving the supply.

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A group of fishermen have to appear in Washington before a committee of Congress or other governmental agency relative to the merits of a particular bill affecting their industry or the needs for changes in duty on fish and fishery products, or the market situation regarding some products which they produce. Almost invariably they visit the Bureau of Fisheries to obtain the latest statistics on production and the trend of the fishery or manufacture over a period of years. The same is true of State authorities wishing to determine the need for adequate protection for a particular fishery to determine whether the catch has been increasing or decreasing and to what extent. It is only by the collection of fishery statistics that the diminution in stocks of fish can be detected and remedial measures taken. As most of the important fishes are not confined within the borders of a single State, the work of the Bureau is doubly important in showing the condition and trend of each important fishery throughout its entire range. The Bureau makes annual canvasses of the commercial fisheries of the United States and Alaska, with the exception of those conducted in the Mississippi River and tributaries, in an effort to keep currently informed as to the prevailing tendencies of the various fishing grounds. In these canvasses statistics are collected which show the catch of fish, the number of vessels and men engaged in the fishery, the amount and types of gear employed, and other similar factors which indicate the intensity of fishing operations on different grounds. These data form the foundation on which must be based the practical application of conservation measures. Statistics of the output of manufactured fishery products and by-products also are collected annually for the use of the trade.

A fishing company for a seafood wishes to establish a market for its catch in an inland city. What is the attitude of that city toward seafoods and what sales resistance will the company meet? Information along these lines are furnished by the Bureau through its market studies.

The purpose of the Bureau's economic studies is to provide the trade with data on the marketing of fishery products. In this work surveys are made of the fish trade in various important cities. Data are obtained on the receipts and sources of supply, trade names in use, types of shipping containers, methods of transportation, number of wholesale and retail establishments, consumer preference for certain types of fishery products, and the like. Surveys also are made of the marketing of certain types of fishery products. One such survey recently completed presented the factors affecting the sale of fresh oysters in 14 cities of the United States.

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In the continental United States the administration of local fisheries is under the various State governments. In Alaska the control of the fisheries is vested directly in the Federal Government and is administered by the Department of Commerce which, through the Bureau of Fisheries, enforces the laws designed to protect the salmon and other fishery resources. A number of patrol boats are maintained and during the fishing season are constantly on guard to see that the laws are observed.

Up to 1924 the highly valued salmon fisheries of Alaska appeared to be threatened with serious diminution through the lack of adequate legislation for their protection. The White Fisheries Law of June 6, 1924, virtually gives the Secretary of Commerce authority to prescribe when, where, and how commercial fishing may be conducted in the waters of Alaska and since the establishment of that act steady progress has been made towards stabilizing the fisheries industry, the most important economic resource of the territory.

The Bureau also conducts the operations necessary to protect the valuable seal herds of the Territory. Probably 85 per cent of all the fur seals in the world make their home during the Summer at Pribilof Islands, which is a Government reservation. The control of these animals is exercised exclusively and directly by the Bureau of Fisheries. Each year the excess males are killed for the skins, under the careful supervision of the Bureau's agents, and the skins are sent to the United States for market. These operations have been so conducted that the seal population of the Pribilofs has increased from about 132,000 in 1910 to about 1,127,000 in 1931, and at the same time permitted the killing of approximately 50,000 surplus males in that year without affecting the proper development of the herd. This was the largest killing since 1889. The skins are dressed and dyed and sold at public auction in St. Louis for the credit of the United States Government.

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The Bureau has charge of the enforcement of the law regulating the interstate transportation of largemouth and smallmouth black bass. This law was enacted by Congress in 1930 for the purpose of assisting the States in giving further protection to these game fish. Violations are predicated on an infraction of State law and in addition on interstate transportation. Its primary object is to increase the supply of black bass, thus improving the fishing. In addition to the Bureau's personnel, numerous State fish and game protectors have been authorized to enforce the provisions of the law.

The Bureau is publishing a list of the game fish laws of the several States and in this and other ways it is accomplishing much towards passage of better legislation for the protection of important game fishes in the several States.

The division of administration is under the immediate direction of the Administrative Assistant to the Commissioner and exercises supervision over personnel matters, the accounting office, the office of architect and engineer, the vessels service of the Bureau, library, records, correspondence and property. In this division are prepared contracts, deeds, plans and specifications for construction work, and so forth, and it is responsible for purchases, maintenance and repair of all vessels and boats, and for the accounting relative to appropriations and property.

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Lighthouse Service

By George R. Putnam, *Commissioner of Lighthouses*

THE BUREAU OF LIGHTHOUSES, forming part of the Department of Commerce, is the central office of the Service charged with the maintenance of lighthouses, lightships, buoys, and other aids to navigation. In Washington are located the offices of the Commissioner of Lighthouses, the Deputy Commissioner, the engineering and naval construction divisions, and such administrative forces as are necessary.

Actual construction and maintenance work of the Lighthouse Service is in charge of the lighthouse superintendents, each of whom is in charge of a district. The coasts and navigable waters of the United States are divided into 19 districts. Each superintendent has immediate charge of the lighthouses and other aids in his district. He prepares preliminary plans and constructs aids to navigation, with the approval of the Bureau in Washington, and operates tenders which carry supplies and equipment to light stations and maintain the buoyage system. A typical lighthouse district will have several lighthouse tenders, and perhaps two or three lightships, which are in reality floating lighthouses, stationed at strategic points along the coast. The larger tenders carry about 30 men and the principal lightships have about 15 men.

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While most of the primary coastwise lights are attended by from one to four lighthouse keepers, there are now several thousand automatic lights maintained by the Lighthouse Service. More than 1,000 of these are on the lighted buoys which are of the greatest value to navigation in marking the channels and dangers. These automatic lights must be visited periodically for inspection and renewal of gas supply. Compressed acetylene gas is used for most of these lights, but electricity is now being tried out with some success.

In the construction of new lights the lighthouse tenders are a vital necessity, furnishing the necessary transport for men and materials, being specially equipped for the handling of heavy weights, and for the landing of materials.

An important part of the work of each lighthouse district is the establishment and maintenance of the extensive system of buoys. There are several districts which maintain over 1,000 buoys, many of them equipped with lights, bells, and whistles. The buoys, often placed near congested channels, are particularly subject to damage from collision, and are occasionally carried from their stations by severe storms or running ice. To maintain these buoys on their stations requires constant vigilance on the part of the service.

During the past 10 years an important advance has been made in the adoption of radio as a means of guiding mariners. At the present time there are 98 radiobeacons in commission at lighthouses and lightships along the Atlantic and Pacific coasts, upon the Great Lakes, and in Alaska, Hawaii, and Panama, and other stations are under construction. The Lighthouse Service has in certain instances employed radio telephone service to facilitate its work, and has radio or telephone communication available on most of its vessels and stations.

The work of purchasing and distributing the large volume of material which is each year used by the Service has been decentralized to a great extent, but a substantial stock is kept at the general lighthouse depot, on Staten Island, N. Y. Here many of the contracts for the purchase of such items as buoys, lighting apparatus, lenses, ship fittings, and mooring chains, are made. The general depot also has facilities for the manufacture of certain special items used extensively in the service but not readily obtainable elsewhere. The eleventh lighthouse district, the headquarters of which are at Detroit, has developed much special electrical apparatus for radiobeacons. Other districts are specially equipped for the building of small boats, which are distributed to the service at large.

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The jurisdiction of the Lighthouse Service includes all waters of the Atlantic and Pacific coasts, the American waters of the Great Lakes, Porto Rico, the Hawaiian Islands, the Mississippi and practically all other navigable rivers of the United States. The total number of aids to navigation now maintained by the service exceeds 20,000, and this number is increasing this year. The Service has a fleet of over 50 lighthouse tenders, and an approximately equal number of lightships.

The Airways Division, charged with the lighting and marking of the airways and with the furnishing of communication service is also operated through the organization of the Lighthouse Service.

Coast and Geodetic Survey

By R. S. Patton, *Director*

THE UNITED STATES COAST AND GEODETIC SURVEY was created by Act of Congress passed in 1807, and actually began field work in 1816. Its activities cover the charting of the coasts and the costal waters of the United States and its outlying territories and possessions; the extension of the triangulation, leveling, and gravity surveys over the entire area of the United States and its outlying areas; the determination of tidal datum planes; the prediction of tides and currents; and the operation of magnetic and seismological observatories and the extension of a magnetic survey over the United States and its outlying areas.

Its work embraces fundamental scientific inquiries of great importance. It must determine and record with accuracy the nature and form of the seacoasts; the depths of the waters contiguous to the coasts; the character of the sea bottom; the location, form, and nature of reefs, shoals, and other natural dangers to navigation; the time and extent of the ebb and flow of tides; the direction and strength of currents; the amount and rate of change in the divergence of the compass needle from the true north at different places; and the true relative locations of points on the earth's surface, that is, their latitude and longitude and the directions one from another. All these data are requisite to the construction of accurate and complete nautical charts, the publication of sailing directions and other information required in navigation, and for engineering purposes.

The primary data are secured by the Survey's field service, which consists of a mobile staff of hydrographic and geodetic engineers, a small fleet of surveying vessels, and a number of scientific observatories and stations. Though the dividing line is by no means distinctly drawn, operations may roughly be divided between those conducted on land and those conducted at sea—chiefly in the coastal waters.

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The preparation of navigator's charts and other nautical publications is the most important single function of the United States Coast and Geodetic Survey, which not only is responsible for the compilation of the original charts but must keep them corrected for constantly recurring changes. The Survey issues over 700 different charts, covering all the coasts under American jurisdiction. Its Coast Pilots contain sailing directions for all navigable waters along our coasts, while its tide tables cover all the principal ports of the world.

In collecting the basic data required in the preparation of charts, the Survey operates a fleet of 11 surveying vessels, ranging in size from 220 to 1,400 tons. Two of these vessels are the property of the Philippine Government and are used exclusively in surveying Philippine waters. In addition to the larger vessels, the fleet includes a number of power launches, tenders, and auxiliary craft which enter waters not accessible to the larger boats. The vessels are assigned to different areas largely according to the seasons, the northerly coasts being worked during the Summer and the boats moving south for the Winter months.

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Just as the aviator can tell his approximate location by the terrain over which he flies, so characteristic submerged valleys, parks, and plateaus serve as "landmarks" for the ocean navigator. The location of each elevation or depression of the sea bottom, each submerged peak or valley, must be accurately shown on nautical charts, so that the navigator using them in conjunction with his sounding apparatus may determine his position, and the course he must steer, with precision. The vessels of the Survey sound and survey the coastal waters and outlying shoal waters traversed by traffic lanes for the purpose of determining and plotting the contour lines of submerged channels, banks, and shoals. These operations include lead soundings, wire dragging to locate bowlderlike rocks, and the use of automatic sounding apparatus, and they are accompanied by topographic surveys to delineate the shore line and locate dry rocks, shoals, and banks offshore, and by triangulation to give points on land from which the shore line and the position of offshore soundings may be determined.

All navigable waters adjacent to American coasts have, of course, been surveyed and are charted. In many regions, however, the original surveys, made in days when traffic was less and vessels smaller, are no longer adequate. In some areas they were never complete. The hydrographic work of the Survey now consists largely of the more detailed surveys of roadsteads and harbors, and revision work necessitated along coasts which are continuously changing as the result of storms, tides, erosion, alluvial deposits, and other natural causes.

The Bureau maintains its own engineering and printing plant for the manufacture of charts. The plates are corrected before each issue to include all information developed since the date of the last issue. Hand corrections are made in the printed stocks covering changes in aids to navigation or new dangers discovered. Revised charts are printed to cover areas resurveyed. Over 286,600 nautical charts were issued during the fiscal year 1931, each one corrected to the date of issue. These charts are sold at prices ranging from 25 to 75 cents a copy.

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Automatic tide gages are kept in operation throughout the year at special stations along the coasts. In addition, tidal observations are continuously made in connection with all hydrographic surveys. The primary purpose of tidal observations is to furnish data for hydrographic and geodetic control and to furnish data for the publication of annual tide tables, which give in advance the times and heights of the tides at all important points, for the benefit of commerce and navigation. Such observations serve also to establish, by means of the location of bench marks, datum planes along the coasts for use in harbor improvements, coast protection, and engineering works of various kinds.

Current observations are made both by special parties and by the regular surveying expeditions. Their purpose is to furnish data for the publication of annual current tables and to make possible accurate forecasts of the direction and velocity of ocean currents under all conditions of weather. In making current observations, the Survey not only utilizes its own vessels and stations, but it obtains the cooperation of the other seagoing services of the Government, and of the masters of coastwise merchant steamers.

Geodesy, as a science, has for its object the determination of the size and shape of the earth. It is applied to determine the true relative locations of points on the earth's surface; that is, their latitude and longitude and the directions between them. The principal geodetic operations are triangulation, traverse, leveling, and astronomical and gravity observations.

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Some or all of these operations are necessary in connection with hydrographic surveys. The triangulation of the marginal strips of land bordering upon the sea is a necessary preliminary to the survey of the coastal waters for chart purposes, in order to locate all control points. A first-order triangulation of the interior United States is necessary to correlate the separate surveys of the Atlantic and Pacific coasts. These first-order surveys across the continent incidentally furnish the control points to which detailed land surveys in the interior are referred. Although this interior work was in the beginning limited to that required to correlate and tie together the hydrographic surveys along the coasts, it has gradually been extended, on account of superior facilities of the Survey for its performance, with a view to providing adequate control for all local surveys in the interior. It is contemplated that the arcs of triangulation shall eventually form a grid over the country, so spaced that no point will be more than 25 miles from a first-order triangulation station.

Leveling is the operation of determining the difference of elevation between any two points on the earth's surface, each being referred to mean sea level as zero. A network of first-order levels, covering in a general way the entire United States, has been run by the Coast and Geodetic Survey, the Geological Survey, and the Corps of Engineers of the Army. The Coast and Geodetic Survey is at the present time extending the system. All local surveys and engineering operations are based upon this network of first-order bench marks.

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The astronomic determination of latitude, longitude, and azimuth is a necessary preliminary operation to adjusting the triangulation network of the country to the correct geographical position.

The Survey's geodetic work is done by field parties, a number of which are engaged from time to time in different parts of the country in carrying on the operations here described. The offices at Washington prepare from the field records the control data required in the construction of charts and maps.

The work in terrestrial magnetism consists in determining for all parts of the United States and adjacent waters the compass variation, inclination, and horizontal intensity of the earth's magnetic field. These are subject both to daily and annual change and also to sudden temporary changes known as magnetic storms, which have been found to be connected with communication disturbances over the radio, telegraph and cable.

The prime object of this work is to supply to land surveyors, air and water navigators, for any date and any place within the limits of the survey, the variation of the compass, that is, the amount by which the compass needle points east or west of true north.

The data for determining these variations are obtained from five permanent observatories, where continuous photograph records are made of the variations, and by field parties working on land and sea.

Since 1925 the Survey has engaged in seismological investigations for the earthquake problem in the United States. Eight seismograph stations are now being operated directly or cooperatively and six others not operated by the Government furnish records for interpretation.

For assisting the engineer and architect in design of buildings in earthquake areas, instruments are now in manufacture which will record the amount of acceleration and displacement in the immediate vicinity of an earthquake.

A seismological report is published annually describing the earthquakes occurring during the period throughout the United States and its outlying territories.

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Two series of maps for the guidance of aviators are published by the United States Coast and Geodetic Survey:

1. Strip airway maps, covering an area 80 miles wide (about 10 inches in width) along established airways.

2. Sectional airway maps (size about 20 by 42 inches), embracing 2 degrees latitude by 6 degrees longitude, with a 2-inch overlap on adjoining maps. The 92 maps of the series when completed will cover the entire United States.

These maps are drawn to the scale of 1:500,000 (8 miles to the inch), for use in air navigation. They are lithographed in colors and show streams, roads, railroads, towns and elevations. Readily understood symbols are used to emphasize features of importance to air navigation, such as radio ranges, airports, auxiliary landing fields, airway beacons, lighthouses, high-tension lines, and compass roses.

Airways maps are prepared for the Aeronautics Branch of the Department of Commerce but are on sale at the office of the United States Coast and Geodetic Survey in Washington, D. C., and its field stations at New York, San Francisco, Boston, New Orleans, Seattle and Manila, where airway maps issued by the Air Corps of the United States Army may also be secured.

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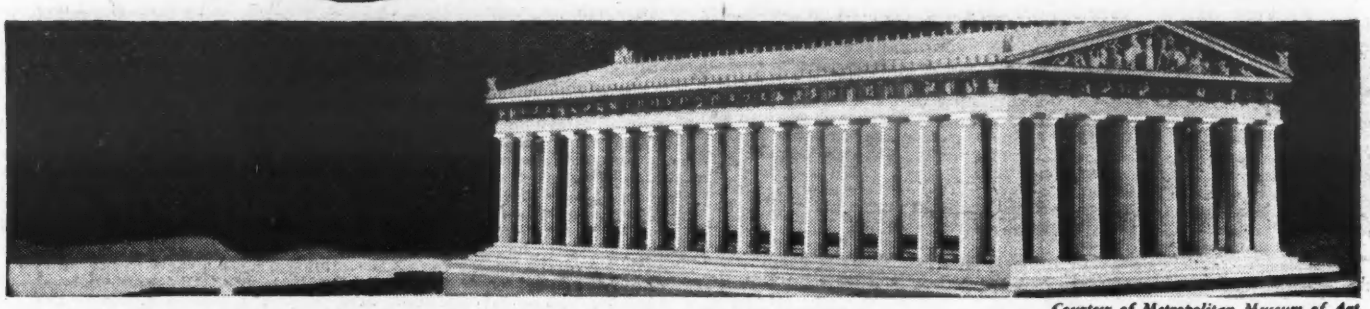
Steamboat Inspection Service

By Dickerson N. Hoover, *Supervising Inspector General*

THE STEAMBOAT INSPECTION SERVICE functions so smoothly and withal so quietly in the performance of its vitally important duty of safe-guarding life and property that the general public is hardly aware of its existence. Yet no member of that same general public can embark for a voyage on a vessel of American registry or on a foreign passenger vessel embarking passengers in ports of the United States without finding, if he cares to investigate, that, with few exceptions, the vessel he boards has been thoroughly inspected by trained and experienced representatives of the Service.

He will find that not only has the ship's hull, its boilers and machinery and life-saving and fire-fighting equipment been tested and examined, and its stability and safe passenger carrying capacity calculated, but, if the vessel he boards is of American registry, that the officers who navigate that vessel, the engineers who operate its machinery, and the seamen and lifeboat men who carry on the more arduous labors incidental to navigation and operation have one and all been licensed or certificated by the Service on the basis of their experience and ability to pass a thorough examination. Vessels other than passenger vessels such, for instance, as freight and towing steamers, seagoing barges, steam yachts and certain classes of motor-driven vessels are also inspected by the Service to the end that the lives of the operating personnel will be properly safeguarded and that property losses will be reduced to a minimum by insuring through such inspection, and the examining and licensing of the officer personnel and the examining and certificating of the seamen and lifeboat men, that such

GLORIOUS to the PAST



Courtesy of Metropolitan Museum of Art

THE PAST The Parthenon completed in 438 B. C. during the reign of Pericles. It constitutes a tribute to Athenian civilization.

ON the Acropolis of Athens stand the proud ruins of the Parthenon, reminder of a civilization that flourished twenty-four hundred years ago. Its beauty is an eternal tribute to its builders. Pericles, the Athenian ruler who sponsored its construction, and Phidias, the great sculptor whose friezes adorn its facades, created in stone and marble an enduring monument to ancient Athenian civilization.

In the capital of our nation there has risen the magnificent structure of the United States Department of Commerce. Its builders have erected a glorious monument to the social enlightenment, to the scientific knowledge, and to the enterprise and efficiency that is America's today.

It is fitting that this building should house a great and useful branch of our government which is playing so prominent a part in our progress and that of other countries of the world. The Department of Commerce provides us efficiently, and economically, with accurate data which enable statesmen, scientists, business leaders, and social workers to plan for the betterment of mankind. Its work charts the way for great forward steps in our social and industrial progress.

The Commerce Building, which houses the many divisions of the Department of Commerce, is a monument to modern architecture and efficient equipment. It provides the best of modern facilities for the efficient conduct of the Department's far-flung activities.

The International Business Machines Corporation is justly proud of the fact that International Electric Tabulating and Accounting Machines (Hollerith) aid the Department of Commerce in its eminent and useful work. We are proud of the fact that in this great structure International Time Equipment assures accuracy and uniformity of time throughout all branches of the United States Department of Commerce.

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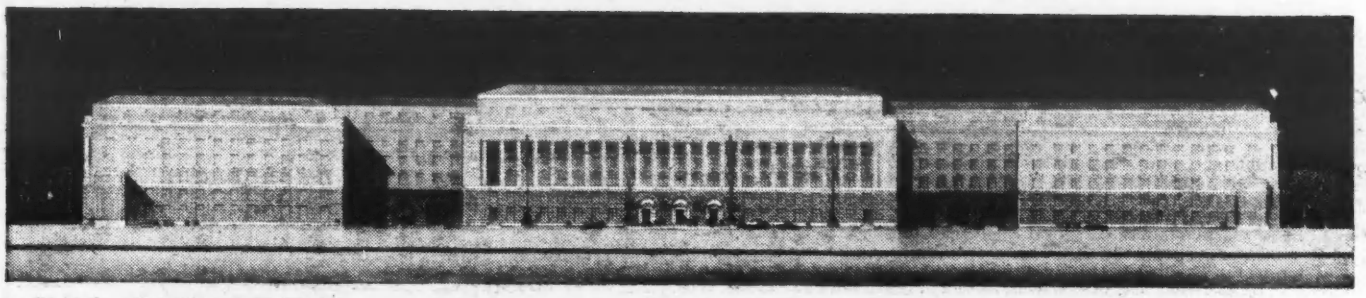

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vessels will be operated without danger to themselves or to other vessels through unskillful navigation, defective machinery, hull or equipment.

The organization of the Service is such as to insure prompt and efficient service to vessel owners, operators and managers. At the head of the Service, with headquarters in the District of Columbia, there is a Supervising Inspector General with the necessary office force.

Working under the direct supervision of the Supervising Inspector General, with their headquarters in Washington, D. C., is a staff of traveling inspectors, engaged in field work, who report to and receive instructions only from the Supervising Inspector General. There is also a staff of assistant inspectors engaged in testing steel at various mills who are stationed at Coatesville, Pa.; Pittsburgh, Pa.; Philadelphia, Pa.; Chicago, Ill.; Cleveland, Ohio, and Milwaukee, Wis., and who report the results of their tests directly to the Supervising Inspector General.

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For administrative purposes the country, as a whole, including the Hawaiian Islands, Porto Rico and Alaska, is divided into 11 supervising inspection districts. In each of the 11 districts there is an administrative officer bearing the title of Supervising Inspector. Each district is in turn divided into local districts, the location and number of which are specified in the United States Revised Statutes.

In charge of each local district is a board consisting of a local inspector of hulls and local inspector of boilers, and working under the direction of boards, in all districts where the volume of work warrants their appointment, are assistant inspectors of hulls and boilers, respectively.

The supervising inspectors of the 11 districts meet once each year in the City of Washington, D. C., and at such other times as the Secretary of Commerce may prescribe, and acting as a board, under the chairmanship of the Supervising Inspector General, formulate, by virtue of authority conferred by acts of Congress, rules and regulations governing the construction, operation, manning, and equipping of steam and, within narrower limits, motor vessels of all classes coming under the jurisdiction of the Steamboat Inspection Service, and this to all intents and purposes includes practically all vessels carrying freight or passengers for hire.

The titles, duties, responsibilities, and functions appertaining to the positions of supervising inspector general, supervising, traveling, local, and assistant inspectors, are prescribed in general form by act of Congress and set forth in the Revised Statutes. The entire personnel engaged in actual inspectional work consists of men who received their training and experience in the shipyards and on the merchant vessels of the United States.

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Inspection work begins in most cases prior to the actual laying of a vessel's keel, when blue prints showing construction details of the hull, boilers and machinery are submitted to the Service for approval. During construction representatives of the Service visit the vessel at frequent intervals to note progress, locate defects and faulty workmanship, and to see that the laws, rules and regulations of the Service are complied with.

How thorough this inspection is may be judged from the following brief summary of work done in a given case:

(a) Boiler material tested at mills to determine physical characteristics and chemical composition.

(b) Calculations made to determine safe working pressure for boilers.

(c) Boilers examined under construction and tested when completed.

(b) Hull design checked with particular reference to strength and to spacing of water-tight bulkheads.

(e) Valves, fittings, steam pipes, and flanges examined and tested.

(f) Fire mains, steam smothering apparatus, smoke and fire-detecting systems examined and tested.

(g) Life-saving equipment, such as lifeboats, mechanical davits, life preservers, life rafts, ring buoys, and line-carrying guns examined and tested.

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(h) Steering apparatus, means of escape from compartments, electrical installations examined and tested.

(i) If vessel under construction is to carry passengers, and the gross tonnage exceeds 500, or if more than 50 passengers are to be carried, then an inclining test is held and calculations made to determine the vessel's stability and the total number of passengers that can be safely carried under the conditions apt to be encountered upon the route upon which the vessel is to operate.

When the construction of a vessel is completed, if all requirements of the Service have been met, a certificate is issued to the owners permitting operation for one year. At the end of the first year of operation and each year thereafter as long as the vessel is engaged in carrying freight or passengers for hire, it is again subjected to a thorough inspection. Boilers, machinery, fire-fighting and life-saving equipment are tested and examined before a certificate is renewed. In addition, many intermediate inspections of vessels are made (particularly of passenger vessels) while the certificate remains in force.

The following statistical excerpts from the annual report give an idea of the scope of the work performed:

During the fiscal year ended June 30, 1931, the personnel of the Service inspected and certificated 6,526 vessels, with a total gross tonnage of 14,823,870, of which 6,172 were domestic vessels, with a total gross tonnage of 10,830,025, and 354 were foreign passenger vessels (embarking passengers in the United States), with a total gross tonnage of 3,993,845. Of the domestic vessels inspected and certificated, there were 4,581 steam vessels, 1,237 motor vessels, 19 passenger barges, and 335 seagoing barges.

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A total of 305,219,538 passengers were carried on steam vessels required by law to report the number of passengers carried. Division of this number by 71 (the total number of passengers lost), gives 4,298,866 passengers carried for each passenger lost.

All told 2,517 marine boiler plates and 104 steel bars were tested at the mills by inspectors assigned to that duty.

A total of 121,078 life preservers, 5,427 cork ring life buoys, 502 lifeboats, 263 life rafts, and 337 boat davits were inspected at the place of manufacture.

A total of 24,102 officers' licenses of all grades, 6,294 able seamen's certificates of service, and 8,841 lifeboat men's certificates of efficiency were issued during the fiscal year.

Boilers inspected numbered 11,969, of which 215 gave way under hydrostatic test. Defects found in boilers and attachments totaled 102,124.

A total of 1,125 cases were investigated, of which 835 were dismissed, and 148 reported to United States district attorneys and chief officers of customs.

During the fiscal year 106 vessels were inclined by the inspectors in the Central Office.

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Bureau of Navigation

By Arthur J. Tyrer, *Commissioner of Navigation*

THE BUREAU OF NAVIGATION (which is one of the oldest Bureaus in the Government) is generally responsible for the enforcement of the laws and regulations applying to the American Merchant Marine and to American merchant seamen.

These laws and regulations cover principally the registry, enrollment, and licensing of American vessels; the admeasurement of vessels to determine the basis for the assessment of tonnage taxes, and other Federal, State, and municipal charges; the assessment and collection of tonnage taxes; the entry and clearance of vessels at American ports; and the recording of deeds, mortgages, bills of sale, and other instruments affecting the ownership of vessels.

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The Bureau prepares and issues annually the List of Merchant Vessels of the United States, and other publications of a like character unsurpassed in scope, detail, and accuracy by those of any other maritime nation.

Among the laws enforced by the Bureau are the Load Line Act of March 2, 1929, fixing load lines for all vessels, foreign and American, leaving our ports or the ports of our possessions, showing the depth to which such vessels may be loaded with safety; the Passenger Act of 1882, securing the safety and welfare of steerage passengers arriving at, or departing from, United States ports; the Motor Boat Act of June 9, 1910, and the Numbering Act of June 7, 1918, both of which are designed to prevent the loss of life and to secure obedience to the principles of navigation on over 250,000 small motor craft in American waters.

The Bureau also supervises the enforcement of the laws concerning neutrality so far as they relate to offenses involved in the clearance of vessels fitted out for military purposes or in the transportation by water of recruits or munitions. It administers the Coastwise Law, reserving to American vessels the transportation of cargoes and passengers in the domestic commerce of the United States; the regulations governing the passage of vessels through the improved waters of St. Marys River (connecting Lake Superior and Lake Huron), the regulations for the patrol of crowded waters during regattas and marine parades; the general pilot laws; the laws preventing the overcrowding of passenger vessels; the steamboat inspection laws covering manning, equipment, and navigation; and the laws and regulations governing shipment and discharge of seamen, their wages, scales of provisions and quarters, and the settlement of their grievances against owners and masters.

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Customs officers perform practically all of the work involved in the admeasurement and documenting of vessels, and in the collection of tonnage dues and navigation fines, penalties, and forfeitures; in the recording of bills of sale, conveyances, and mortgages affecting vessel property; in the enforcement of the laws relating to the entry and clearance of vessels at American ports; in the enforcement of the laws providing for the safety and welfare of steerage passengers; and in the enforcement of the laws concerning neutrality, and the laws reserving to American vessels the transportation of cargoes and passengers in the domestic commerce of the United States. Except at 15 ports, customs officers, acting as shipping commissioners ex-officio, perform all the work relating to the shipping and discharge of seamen; and everywhere they perform perhaps the major portion of the work involved in the enforcement of the Motor Boat Act.

The customs officers, however, receive their instructions directly from, and make their reports directly to, the Bureau of Navigation, which formulates the necessary rules and regulations, under the direction of the Secretary of Commerce, and is ultimately responsible for their administration.

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The Bureau of Navigation operates six inspection vessels covering the Atlantic and Gulf coasts of the United States and the Great Lakes in the enforcement of the laws requiring life-saving equipment affecting the crews of vessels, preventing the overcrowding of passenger steamers, and the various requirements for protecting life and property at sea. Nearly 200,000 vessels, large and small, are covered by these inspection vessels.

The Bureau at Washington decides all questions and disputes which may arise in connection with the registry, enrollment, and licensing of vessels; the entry and clearance of ships at American ports; the assessment and collection of tonnage taxes; and the recording of mortgages, bills of sale, and transfer of vessel ownership. It directly supervises the admeasurement of vessels; the fixing and placing of load lines on merchant vessels; and it receives and examines the accounts of customs officers relating to the collection of navigation fees, fines, penalties, forfeitures, and similar items. It has a special field personnel engaged in the enforcement of the motor boat laws.

The Bureau is required to investigate and report to Congress on the effect of the laws regarding the Merchant Marine. Every four years it compiles and publishes a volume called "Navigation Laws of the United States," which is a compilation of the navigation laws and the rules and regulations issued by the Department of Commerce for their administration and enforcement. Each year the Bureau collects and publishes comprehensive statistics relating to the Merchant Marine.

Shipping commissioners are appointed by the Secretary of Commerce for the most important ports of entry, there being 15 at the present time. At other ports, excepting those on the Great Lakes, collectors of customs act as shipping commissioners ex-officio.

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The shipping commissioners, under the direction of the Commissioner of Navigation, supervise the making and fulfillment of contracts between seamen and masters or owners of merchant ships, and enforce the laws governing the shipment, payment, and discharge of seamen. They, or their representatives, board vessels entering port to see that the seamen are properly paid off; and in some cases they actually receive money from the shipping companies and pay it to the crew, accounting for such moneys to the shipping companies under bond. They arbitrate disputes between crews and officers of vessels and assist the owners or masters of vessels about to sail in obtaining crews. They take charge of the effects of deceased seamen, together with any wages due them, accounting in these matters to the Federal courts having jurisdiction. They maintain records of the shipment and discharge of seamen; assist in the location of missing seamen for relatives and consuls; examine food on vessels; assist sick seamen to enter marine hospitals; investigate cases of alleged "shanghaing;" and distribute books and magazines to ships. They arbitrate and settle disputes arising between investigate cases of alleged "shanghaiing;" and distribute books and similar matters. In such cases their decisions as to matters of fact are final.

SUCCESS BORN OF CONFIDENCE ---AND THE BUDGET CONTRACT

BORN of confidence! Not the false pride that "proceeds from self-opinion and is occasioned by ignorance and flattery"—the story of the Consolidated Engineering Company is one of sane, winning assurance based on a belief in our nascent capacities.

Our beginning founded itself upon belief—supreme faith in our ultimate future. We *knew* our ability to construct structures of quality. We were confident of our contacts with those who needed our services. Certain of our power to gain; to retain the confidence of architects and subcontractors.

With ambition's star beckoning us on—we have stepped steadily forward to larger and greater things, supremely sure of our strength—constantly assured of our destination.

Early recognizing that the owner must have unfaltering confidence in the architect chosen to develop his wishes—we further realized that the owner must be equally confident of the builder's ability to advise him shrewdly on matters of cost and structural economies.

That we have fully justified the owner's confidence in us is evidenced by the rapidity of expansion enjoyed by this company, and by the fact that the majority of our contracts are based upon a Budget Form of contract. Much of our success has been predicated on an honest interpretation of such a contract.

This type of agreement requires the owner to pay only for what he gets and lets him profit by all savings possible to accomplish as construction progresses. It establishes for him, in advance, the maximum total he will be required to pay, it provides the owner with expert building counsel—architectural experts, structural experts, experts in costs. The wisdom of experience lays the foundation of building success for him. It creates for the owner and with the owner a harmonious working unit, whose combined efforts will perform miracles of construction.

It unfolds to the owner and architect a perfectly illustrated story of facts and figures—one which enables the builder to pass on to the owner practical criticisms of the construction in each of its progressive stages.

This budget form of contract, as finally approved by the architect, definitely outlines the detailed development of the project. It eliminates uncertainty. It provides against the frequent necessity for hasty, disfiguring last-minute modifications and alterations so detrimental to the artistic creations of a worthy architect. It is the contract that naturally appeals to the architect.

Because of the type of contract we have outlined—assuring co-operation of builder, architect and owner; because we are fully supplied with proper cost analyses; because of our unusual purchasing facilities; because we have proved that we *know* the proper conduct of construction; because our past has been monumental in its high achievements, our future is potent with constructive meaning to the building world.

CONSOLIDATED ENGINEERING COMPANY, INC.

BALTIMORE, MARYLAND

Builders of the

NEW DEPARTMENT OF COMMERCE BUILDING

Patent Office

By Thomas E. Robertson, *Commissioner of Patents*

"TO PROMOTE the progress of science and of the useful arts, by securing for limited times to * * * inventors the exclusive rights to their * * * discoveries"—this is what the Constitution empowers Congress to do.

The primary function of the Patent Office is to issue letters patent securing this right to inventors. It has the additional duty of registering trade marks, prints, and labels used in interstate and foreign commerce.

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Sixty-five technical divisions of the Patent Office are engaged in the work of examining applications for patents for inventions, considering all phases of the arts and sciences from the simplest form of a device, such as a paper fastener or clip, to the most complicated electrical and automatic machines, or the most complicated chemical compounds and processes. In addition to this, one of the divisions handles applications for design patents and there is a separate division whose function it is to classify patents properly, to revise the classification from time to time to keep up with the progress of the arts and sciences, and to see that each patent as it issues is properly classified and properly cross-referenced or cross-indexed in other classes in which it would be useful. These divisions, with certain auxiliary and appellate branches, perform the scientific and legal work of the office. There are also a number of clerical and administrative divisions. The personnel of the office numbers about 1,430, half of which force is engaged in technical work and the other half in clerical work.

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While the investigating work of the Patent Office is highly scientific, yet the office is, in fact, also a legal institution. Its findings are judicial and its proceedings are conducted accordingly. Yet its subject matter is often highly technical. Its professional personnel must be thoroughly grounded in the arts and sciences, and so grouped and organized that an application covering any conceivable appliance, article, or process may receive consideration by one skilled in the particular art or science applicable.

A patent grant gives the inventor the right to exclude all others from making, using, or selling his invention for a term of 17 years. The invention must be completely disclosed in the application, which consists of a drawing, in case the invention is susceptible of illustration, and a specification fully describing the nature and the operation of the invention, and concludes with "claims," setting forth the exact features or points which the inventor believes himself entitled to have protected by a patent.

The examiner considering a patent application first satisfies himself that the disclosure is complete. He must then search through existing domestic and foreign patents and through the literature of the art involved, to determine what novel and original features are exhibited in the application, and the extent to which the inventor's claims should be restricted in view of prior invention. While the primary function of the examiner is to grant patents, he has the equally important duty of preventing the grant of invalid patents which would have the effect of hampering industry.

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The arts are assigned to the 65 examining divisions in such a way as to keep related arts together and to permit a high degree of specialization on the part of the examiners. In each division the existing domestic and foreign patents in the art or arts assigned to it are minutely subclassified and indexed in order that particular subject matter may be readily located.

Applications are taken up in each examining division in the order of filing. The principal examiner in charge of the division decides all questions as to the merits of each application and, after proper notice to the applicant, may reject any and all claims made by the inventor. He determines whether a patent may issue, and the scope which it may be allowed to cover, his adverse decisions, however, being subject to appeal to the Board of Patent Appeals and thence to the Court of Customs and Patent Appeals.

Proceedings upon applications for the registration of trade marks, prints, and labels are entirely separate from proceedings in patent cases, being governed by a special code of laws and regulations. The work is handled by the Trade-mark Division, which receives and acts upon all such applications. Correspondence is carried on directly with applicants, and the examiner in charge determines registrability in each case, subject to appeal to the Commissioner. All registered trade marks, prints, and labels are kept on file in the Trade-mark Division, the trade marks being appropriately classified and indexed to facilitate search and examination.

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The Interference Division decides questions of priority arising in both patent and trade-mark cases where two or more applicants contest for the same claim. The patent branch of the Division takes charge of interference proceedings after an issue has been raised before one of the examining divisions. The trade-mark branch has similar jurisdiction in contested trade-mark cases.

Interference proceedings are conducted in accordance with rules of practice analogous to the rules governing equity procedure in United States courts. Testimony is taken, briefs are submitted, and oral arguments are heard. From the final decision entered by the interference examiner in patent cases appeal may be taken to the Board of Appeals. In trade-mark cases appeal may be taken directly to the Commissioner.

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The Board of Appeals consists of the Commissioner of Patents, the first assistant commissioner, two assistant commissioners, and nine members appointed by the President. Adverse decisions of the examining divisions and of the interference examiner on applications for patents are appealable to this Board. In sitting upon a case three members constitute a quorum. The proceedings are formal and conclude with a written decision over the signature of the members of the Board, sustaining or modifying the decision of the examiner. From this Board appeal lies to the Court of Customs and Patent Appeals, or applicants may file a bill in equity under section 4915, Revised Statutes, in the Supreme Court of the District of Columbia.

In addition to exercising a general administrative supervision over the Patent Office, the Commissioner of Patents performs important judicial functions. His judicial duties are shared with the three assistant commissioners, whose decisions, although rendered in their own names, have the same force as those of the Commissioner. Decisions on applications for the registration of trade marks, prints, or labels may be appealed from the trade-mark examiner, or the examiner of trade-mark interferences, to the Commissioner. The Commissioner with the three assistant commissioners and the nine examiners in chief constitute a board of appeals from whose decision appeal may be taken to the Court of Customs and Patent Appeals. In trade-mark and print and label cases, appeal may be taken from the decision of the Commissioner to the Court of Customs and Patent Appeals.

The solicitor is the Commissioner's chief law officer. He appears for the Commissioner in cases heard before the Court of Customs and Patent Appeals and represents him in suits to which he is a party in his official capacity. There are three law examiners, who aid the Commissioner, the assistant commissioners, and the solicitor generally in the performance of their legal and judicial duties and advise them in particular cases. They examine authorities and assist in preparing the formal decisions reached in appealed cases.

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A staff numbering about 700 technically and legally trained examiners passes upon applications for patents, trade marks, and designs, and a staff of about 700 clerical employes, divided between the examining divisions and nine clerical divisions, attends to the correspondence and routine work of the office.

The Mails and Files Division receives and records the daily mail, and distributes it to the proper examining divisions. This consists of applications for patents and trade marks, drawings illustrating inventions, formal appeals, letters transmitting fees, requests for copies of patents or transcripts of office records, copies of assignments of patents or applications, amendments to pending applications, and correspondence relating to the various phases of Patent Office business.

The Financial Division receives and accounts for fees, sells coupons receivable in payment for copies of patents and for other minor services desired by applicants or attorneys, and keeps the appropriation and money accounts of the Patent Office. The fees collected by the Patent Office are almost sufficient to pay the entire running expenses of the office. They now amount to about $4,500,000 annually.

The Application Division inspects all applications for patents as they are received, to see that they are complete and in due form, prepares them for attention by the examining divisions, distributes them to those divisions, and conducts necessary correspondence with applicants regarding matters of form.

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The Issue and Gazette Division acts as the publication agency of the Patent Office. It prepares the specifications and drawings of mechanical and design patents for printing, in connection with the issue of the grants to the inventors or applicants. Patents and trade-mark certificates are issued each Tuesday, the number averaging about 1,200 weekly. The patents and trade marks included in each week's issue are published in the Official Gazette, a weekly publication containing about 250 quarto pages and 1,200 illustrations. One hundred copies of each patent with specifications, claims, and drawings, and 60 copies of each trade-mark certificate, are printed for sale, exchange with foreign governments, and deposit with libraries throughout the country. The printing of patents and trade-mark certificates, and the Official Gazette, is a tremendous task, the annual cost amounting to over $1,000,000.

The Publications Division has charge of the sale, as well as the free distribution, of copies of patents and trade-mark certificates, these being obtainable at the Patent Office for 10 cents each. Copies of all existing patents and trade marks, numbering more than 1,500,000, are kept in stock. The number of copies in stock is about 80,000,000, and they occupy some 40 miles of shelving. About 7,000,000 copies are distributed yearly, about 4,000,000 being sold, more than 1,000,000 going to other countries in exchange for copies of foreign patents, and about 750,000 being placed in reference libraries.

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The Manuscript Division furnishes copies of official papers, including patents and trade marks, applications, and other similar records, as may be requested by attorneys and applicants for use in the preparation of applications or in patent litigation. Copies are made in several ways, according to the requirements in particular cases. When typewritten or photostat copies will suffice, they are produced in the Division. When photolithographic work is necessary, it is done by private contractors under the supervision of the Manuscript Division. Copies of papers are usually certified over the signature of the Commissioner and under the seal of the Patent Office.

The Drafting Division inspects the drawings which accompany the applications for mechanical and design patents, and for the registration of trade marks, to see that they are suitable for reproduction. Upon the applicant's request, the draftsmen alter or correct drawings to secure conformity with the office rules or the requirements of the examiners, and when necessary make original drawings. With certain minor exceptions, the cost of the work done by the Drafting Division is collected from the applicants.

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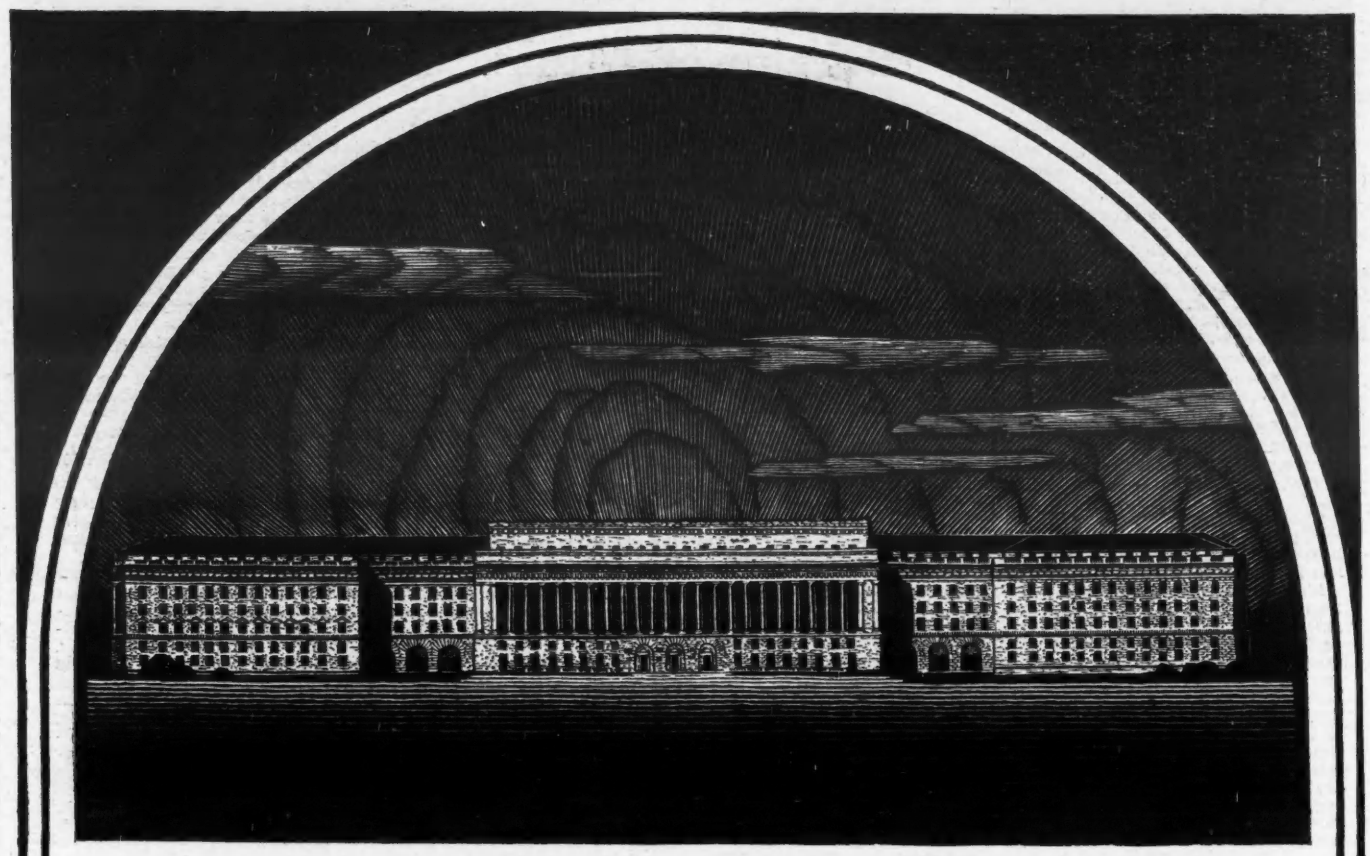
The Scientific Library is for the use of the examiners and the public. It contains complete sets of foreign patents, some 3,000,000 in number, about 17,000 bound volumes of periodicals devoted to science and technology, including the journals of foreign patent offices, and about 25,000 scientific and technical books in various languages.

The Search Room contains copies of all United States patents and trade marks, arranged in classified order and conveniently indexed. It is primarily for the use of inventors and attorneys, but it is also open to the public generally. Inventors and attorneys come to Washington from all parts of the country to make searches in this room, since it is the only place in the United States where all our patents may be found in classified order.

The Assignment Division receives and records all deeds or assignments transferring property rights in patents or trade marks or applications therefor. Instruments affecting the title to patents and trade marks are being constantly received, recorded, and returned to the owners, about 55,000 being handled each year. For a moderate fee, the records are searched and abstracts of title furnished. To facilitate searching, assignments of patents and trade marks, or applications therefor, are digested and carefully indexed. Before any patent or trade mark certificate is issued, ownership is always determined in order to insure that the papers will issue to the owner of record.



It is characteristic of American business that it should build for itself structures in which utility and beauty are so combined as to meet its physical needs and at the same time express in architectural form its aspirations and ideals. ★ The new home of the Department of Commerce stands preeminently in this class. May the commercial and industrial interests of the country, to whose service the building is dedicated, find here a common focus and center, and a new stimulus to that spirit of self-help and cooperation which, for more than a quarter of a century, the Department has done so much to foster and develop.

CONSOLIDATED
GAS COMPANY
OF NEW YORK
and Affiliated Companies

Geo. B. Cortelyou
President

Bureau of Mines

By Scott Turner, *Director*

THE study of the methods of producing, treating and utilizing ores, minerals, oils, gases and other mineral substances is the duty of the Bureau of Mines.

The purpose is to reduce or prevent waste in the mining, quarrying, metallurgical, and other mineral industries, to conserve the country's mineral resources, and to safeguard the health and the lives of miners. The Bureau is specially charged to study the causes of mine accidents and the means of preventing them; to conduct researches in the use of coal, oil, and other fuels; and to make economic studies of the various mineral industries. Investigation of the cause and prevention of mine accidents includes research on explosives and tests of mechanical equipment used in mines and quarries, while economic studies include compilation of statistics on the production and consumption of minerals.

The Bureau is essentially a field organization, with administrative headquarters at Washington and with experiment stations and field offices in the several mining and oil-producing regions of the country. It is organized in four branches—Technologic, Economic, Health and Safety, and Administrative.

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The Technologic Branch, which conducts most of the research investigations of the Bureau other than those pertaining to safety and health, consists of 7 divisions: Mechanical, mining, matellurgical, petroleum and natural gas, experiment stations, helium, and explosives.

Mechanical.—One of the Bureau's important functions is testing electrical mining equipment to determine its permissibility for use in gaseous or dusty coal mines, with the result that the list of "permissible" equipment is constantly growing. The Bureau is also endeavoring to supply the need of industry and the public for better information concerning the characteristics and the uses of different fuels and their products. In its efforts to conserve fuel the Bureau has distributed much information to domestic users, and to boiler and furnace manufacturers, with a view to getting more heat or power from given quantities of fuel. In addition to investigations undertaken for the direct benefit of the consumer, the Bureau serves in a consulting capacity, all branches of the Federal Government, which is itself a large purchaser and user of fuel and an owner of coal lands. The Bureau acts as a fuel-purchasing agency for the Government departments in the District of Columbia and inspects and analyzes much of the coal bought by the Government for delivery at other points. It supervises the Government's heating and power plants at Washington to improve fuel-burning practices. It also gives aid and advice to State and municipal governments in matters connected with the purchase and utilization of fuels. The Bureau has pointed the way to the efficient utilization of the country's enormous lignite resources by developing carbonizing and briquetting processes. The study of boiler-scale formation and boiler-water conditioning aids in the conservation of fuels and boiler equipment and helps to reduce the Nation's fuel bill.

Mining.—Methods and costs of mining and milling are subjects of special investigation at both metal and nonmetal mines, and papers prepared by mine officials describing individual mines and mills are published by the Bureau. Mine management and accounting control, underground ventilation (particularly in the deep metal mines), and subsidence and ground movement are being thoroughly investigated and several valuable publications have already resulted.

As falls of roof are responsible for nearly half of the accidental deaths in coal mines, study of this subject has been continued in the principal coal-mining districts, both in the eastern and western States. The application of geophysical methods as an aid in locating mineral deposits, oil, and gas is being investigated and new and improved methods have been developed by the geophysicists of the Bureau. The problems of small-mine operators in developing their deposits are receiving attention and the field engineers of the mining division keep in close touch with mine operators throughout the country, rendering service and technical advice which are highly valued by the industry.

Metallurgical.—Metals having a value of many millions of dollars are now being recovered each year from complex or low-grade ores that formerly could not be worked at a profit. Metal losses in milling that once amounted to millions of dollars annually have in late years been greatly reduced. New metallurgical processes have been adopted and new methods applied. The Bureau of Mines has been an active agent in the progress made in these directions and constantly seeks in its metallurgical investigations to focus the attention of industry upon wasteful or inefficient practices, to point out improvements, and to obtain the cooperation of producers in having better methods adopted or better devices put into use.

The Bureau—to mention a few subjects—has studied the use of the electric furnace in smelting; the wastes in the metallury of the lead and zinc ores of the Mississippi Valley region; the physical chemistry of steel making; the separation of the zinc minerals in complex ores by selective flotation; the recovery of lead and copper from oxidized ores by leaching; and the recovery of precious metals from complex ores. Through the cooperation of mining companies the results of the Bureau's investigations are now being applied on a commercial scale. The outstanding position being assumed by Utah as a lead and zinc producer is at least in part due to improvements in metallurgical practice which the Bureau has helped to develop.

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To determine the reactions that take place in the smelting of iron ores in the blast furnace, and the relation of these reactions to conventional furnace design, the Bureau has constructed the only successful small experimental iron blast furnace in the world, and has determined the temperatures at various points in the blast furnace, the composition of the furnace gases, and the movement of the furnace charge down the shaft. Its tests and experiments indicate that by changes in furnace design and construction the operating costs of commercial blast furnaces can be materially reduced.

Petroleum and Natural Gas.—Through offices in the important oil and gas producing States, the Bureau makes detailed researches and prepares comprehensive reports on special engineering and chemical problems pertaining to development and production, transportation, refining, and economic utilization of petroleum, natural gas, and their products, and keeps in immediate contact with new departures and major issues which affect the economic growth and technological development of the industry.

The present primary group of correlated research studies on production and transmission includes problems dealing with methods for gauging and controlling natural gas wells to supersede the wasteful method of blowing wells to the air; the efficient flow of natural gas through pipe lines under high pressures; methods of increasing the ultimate recovery of oil from underground reservoirs; the flow of oil, gas, and oil-gas mixtures through porous media; the amount and character of natural gas dissolved in crude oils; vertical flow, temperatures, and pressures in wells; the injection of gas into partly depleted sands and gas migration; and the effect of "shutting-in" wells on ultimate production.

In the field of petroleum chemistry and refinery engineering, the Bureau is studying three closely related problems dealing with efficient and economical methods of fractionation and treatment to make usable and valuable products from crude oils relatively high in sulphur and other deleterious substances. The Bureau also studies the physical and chemical properties of crude oils and the quality of motor fuels.

Other problems deal with the development of outstanding and typical producing fields, where studies are made of surface equipment, underground conditions, and methods of producing oil and gas rationally and equitably. The toxicity of hydrogen sulphide and its corrosive action on aluminum and other materials used in the construction of containers and conductors for oil and gas are also studied.

In the field of utilization, a new large-scale experimental unit has just been completed which will permit the thermodecomposition of relatively large volumes of mixed gases and natural gas, to determine what products can be obtained through the application of heat, pressure, and other agencies.

Experiment Stations.—Nearly all of the experimental and laboratory work necessary to the Bureau's investigations is conducted at 11 experiment stations located throughout the country. The largest of these at Pittsburgh, Pa., is engaged in the study of coal mining in all its phases, including mine safety, first aid and mine rescue work; fuels chemistry, utilization, processing, and constitution; explosives testing and research; toxicity of industrial gases; and metallurgy of iron and steel.

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The petroleum experiment station of the Bureau is located at Bartlesville, Okla. It studies the production, consumption, and utilization of petroleum and natural gas. The nonmetallic minerals experiment station at New Brunswick, N. J., is concerned with the mining, beneficiation, processing, and utilization of nonmetallic minerals. The beneficiation of the low-grade iron ores of the Lake Superior district and fundamentals of iron blast-furnace operation are investigated in the north central experiment station at Minneapolis, Minn. At Rolla, Mo., the Mississippi Valley experiment station is concerned with problems in ore dressing, including the determination of fundamental principles and the application of these data to the various ores of the United States, especially the lead and zinc deposits of the region.

The intermountain experiment station at Salt Lake City, Utah, studies certain fundamental problems in flotation. In addition it is concerned with the metallurgical treatment of complex and low-grade ores. At Tucson, Ariz., the mining and metallurgy of low-grade copper ores, including leaching and smelting, are studied in the laboratories of the southwest experiment station. The metallurgy of rare and precious metals is the subject assigned to the experiment station at Reno, Nev. At Berkeley, Calif., the Pacific experiment station is determining fundamental metallurgy constants with a high degree of accuracy. The preparation and utilization of the coals of the Pacific Northwest and the beneficiation of nonmetallic ores are studied at Seattle, Wash., in the Northwest experiment station. The southern experiment station at Tuscaloosa, Ala., is concerned with the preparation of coal and the beneficiation of the various metallic and nonmetallic ores of the southern district.

Helium.—The Bureau of Mines initiated large-scale production of helium in this country, the element being recovered from natural gas. Experimental plants were built and operated in Texas under the direction of the Bureau of Mines to try out production methods. Following this, a large-scale plant was erected at Fort Worth and operated for some years, first by the Navy and later by the Bureau of Mines, until the source of gas supply was exhausted, when the plant was permanently closed. In the meantime, the Bureau of Mines had been designing and erecting a plant near Amarillo, Tex. This plant started up in April, 1929. Two units with a capacity of 24,000,000 cubic feet of helium a year are now in operation, and a monthly net operating cost as low as $5.95 per 1,000 cubic feet has been attained. In connection with the plant, a low-temperature laboratory is maintained, where researches for improving helium production and purification processes are conducted. The Bureau of Mines has also designed and supervised construction of helium purification plants for the Army and Navy.

Explosives.—The Explosives Division tests blasting explosives to determine their permissibility for use in mining coal or their suitability for use in metal mining, quarrying, and engineering operations. It assists other branches of the Government and officials of the various States and municipalities in drafting specifications for explosives and blasting supplies and in the inspection of such materials when submitted under contracts. It conducts investigations into the properties and behavior of explosives and explosive phenomena, and into accidents and outrages in which explosives are involved.

The economics branch of the Bureau was established on Jan. 1, 1926, to study economic problems of the mineral industries and aid in their solution. The economics branch includes five divisions—coal, mineral statistics, petroleum economics, rare metals and nonmetals, and common metals.

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Coal.—The Coal Division studies industrial and commercial economic problems and conditions of the coal industry. It issues a weekly coal report, including coal-production figures for coal and beehive coke and certain distribution and consumption data for coal; a monthly preliminary estimate of coal and beehive coke production; a monthly coal-market summary reviewing the current marketing data available; a monthly coal-distribution report; a quarterly report of commercial stocks of coal; and annual reports on coal production, value, methods of mining, men employed, time worked, and other important features of the coal industry, on the production of coke and its principal by-products, and on the fuel-briquetting industry.

This division also includes the Government fuel yards which purchase, store, and distribute coal and other fuels to all Government buildings and establishments in the District of Columbia (except the Washington Navy Yard) and to Government institutions outside the District which can be supplied economically through this organization.

Mineral Statistics.—Through annual statistical surveys covering each of the important nonmetallic minerals, except the mineral fuels, this division compiles essentially the only market information available regarding supply, demand, and utilization of specific minerals; for example, annual studies of fuller's earth, magnesim, stone, and potash are typical of 24 annual printed reports prepared on nonmetallic minerals. It also issues a quarterly gypsum statement and a monthly cement report showing production, capacity, shipments by States, and stocks of Portland cement, and collects statistics on all metals of commercial importance. Marketing data on domestic metals are supplemented by statistical compilations of domestic imports and exports and of foreign production. In addition, 62 separate economic studies of minerals are reviewed and prepared for publication in the annual volumes, Mineral Resources of the United States.

Four field offices of the Division—maintained at Denver, Colo.; Salt Lake City, Utah; San Francisco, Calif., and at Joplin, Mo.—furnish useful economic information for practical mining men. Of special interest to the mining industry has been the development of the Division's report on secondary metals—prepared by the Joplin (Mo.) office—

Now

16,000,000 radio sets in the United States

. . and some of radio's greatest developments are still to come

HOW breath-taking has been the growth of radio! In a brief span of ten years it has become a major industry. What seemed almost a miracle was performed when broadcasting increased radio's popular usefulness a hundred-fold. It is estimated that today there are 16,000,000 radio sets in the United States alone.

This marvelous growth could have been made possible only by an intense and exhaustive application of American scientific genius. The product was no greater than the effort behind it.

Radio's first important application in America was to the assistance of American commerce, which the new Department of Commerce Building so fittingly typifies. Radio communications circuits—those invisible strands that reach to the far corners of the earth and touch vessels sailing every sea—have become an indispensable factor in the conduct of the nation's overseas trade. Each year witnesses the opening of new circuits, bringing contact with new markets.

In its rapid strides forward, radio has touched and revitalized many other industries that had appeared to be rigidly matured. Its stimulus has been felt in strangely unrelated fields.

It has been the opportunity of the Radio Corporation of America to lead in the tremendous radio development that has marked the last decade. New tasks for radio are constantly being sought by RCA engineers. New vistas of usefulness are constantly opening before the advancing steps of the industry. Ceaselessly the research goes forward.

Today, through the efforts of these scientists, radio has been made one of the most helpful servants at the public's command, yet it is the conviction of RCA that no opportunity of giving it a wider application or a greater utilitarian value should be overlooked. Some of the greatest developments still lie ahead.

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indicating the importance of these materials in affecting the marketing of primary metals.

Petroleum Economics.—The work of the Petroleum Economics Division consists primarily in the collection and publication of information on the economics of the petroleum and natural-gas industries. It publishes monthly reports showing production and stocks of crude oil and refined products, and giving data on natural gasoline. Annual reports are also issued showing production and stocks of crude and refined products, natural gasoline, natural gas, carbon black, asphalts, and bitumens.

Rare Metals and Nonmetals.—The economic aspects of the industries producing all the rare and minor metals and nonmetallic minerals (except fuels and sulphur) are studied by this division. Market data and other information are furnished inquirers and numerous publications are issued.

Common Metals.—The Common Metals Division includes a small group of engineers serving as specialists in regard to the economic aspects of copper, lead, zinc, aluminum and bauxite, nickel, tin, iron, chronium, manganese, gold, silver, sulphur, and pyrite. They conduct special studies of mineral problems the results of which are published as economic papers of the Bureau of Mines.

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The primary function of the Health and Safety Branch is to devise ways and means for improving the health and safeguarding the lives of workers. The branch has three divisions—health, safety, and demographical.

Health.—For more than 10 years the Bureau of Mines has cooperated with the Public Health Service in work relating to the health of miners. During this time the Bureau has indicated how some common diseases may be avoided by proper sanitation in mines and mining communities, has prescribed approved types of wash and change houses at mines, and has called attention to the essential features of good houses for mining towns. It has ascertained the effects of high temperatures and humidity in lessening the amount of work a man can do; developed methods to determined these effects with accuracy; and disseminated much information about the means of providing proper ventilation in metal and coal mines. The Bureau's surgeons have shown how the hazard of caisson disease among divers and workers in caissons may be greatly lessened, and have made tests to determine the hazard to health through the use of tetra-ethyl lead in gasoline.

Other investigations include: Clinical examinations at Picher, Okla., to determine the effect of working conditions on the health of miners and to supplement the large amount of similar data previously obtained from the coal and iron mines of Alabama, the lead-zinc mines of Oklahoma, and the gold mines of Nevada and California; research work pertinent to the toxic limits and physiological effects of carbon monoxide, hydrogen sulphide, sulphur dioxide and similar gases, and of poisonous vapors and dusts, to contrive means and instruments for detecting them, and to test and develop respiratory protection for use when it is necessary to enter dangerous atmospheres; the selection of warning agents for use in mines and in fuel gases to indicate irrespirable atmospheres; the determination of the factors underlying stream pollution from acid mine drainage, to devise possible means of its disposal; and a study of the diseases and types of accidents most prevalent among miners with the object of instituting preventive measures.

Safety.—The main function of the Bureau's Safety Division is to obtain data pertaining to safety in the mining and allied industries and to disseminate it to persons in those industries. In the fiscal year ended June 30, 1931, training in methods of giving first aid to the injured and in the use of mine-rescue apparatus was given to 112,220 persons in the mining industry. The direct result of this work is the annual saving of more than 200 lives; but the training also makes many of those who take it "safety conscious"—hence, always alert to prevent accidents to themselves and others. The industry itself is rapidly taking over the first-aid training work, and as an aid in this the Bureau has trained nearly 2,000 persons in methods of teaching first aid.

A course in prevention of accidents in bituminous coal mines devised for mine officials was put into effect in the late months of 1930; by the end of the first year nearly 2,000 coal mine officials had completed this course, which requires several weeks for its presentation, and approximately 1,000 others were taking it.

Another function of the Safety Division is assisting in rescue and recovery work at mine disasters, such as explosions, fires, floods, and cave-ins. Later, investigations are conducted and reports are made to the operators. While findings as to single disasters are not published, the lessons learned as to the causes of disaster and precautions that should be taken to prevent similar disasters in the future are given largely to the public in safety talks and in published papers.

Health and Safety Statistics.—The Demographical Division conducts statistical studies relating to health and safety in the mineral industries and to the quantity and kind of explosives used in the United States. The information is made available to mining and quarrying companies and to the public in bulletins, technical papers, and other reports.

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A special feature of the Division's work is a yearly safety contest among several hundred mines and quarries situated in more than 30 States. Trophies are awarded to companies that establish the best safety records as determined by a statistical analysis of accident and employment reports submitted by the companies.

The Administrative Branch consists of two divisions—office administration, which handles the general routine business of the Bureau; and information, which edits and supervises the publication of results of Bureau investigations, answers inquiries regarding the work or publications of the Bureau, and supervises motion-picture production and distribution. The results of the Bureau's work are published as bulletins, technical papers, economic papers, mineral resources reports, miners' circulars, serials, and miscellaneous reports, in the proceedings of technical societies, in the engineering press, and in publications of State and other local agencies with which the Bureau cooperates. The Bureau's library of educational motion pictures is the largest of its kind available to the public. It includes films on 57 subjects, relating to safety and to the methods of mining and preparing minerals. These are widely used by schools, churches, and business and civic organizations.

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President's Conference on Home Building and Home Ownership

By Dr. John M. Gries, *Executive Secretary*

THE DISTINCTION of opening the new Department of Commerce building fell to the President's Conference on Home Building and Home Ownership. A month before the Department moved in, the Conference used the first floor of the central wing of the new building as headquarters and the auditorium as a committee room. Thus the Nation's most monumental effort in public office building began its career in the service of a movement to improve the American home, which because of its scale and its pioneering nature was an historical event.

The President's Conference began on Dec. 2, 1931, and lasted through Dec. 5. The executive staff of the Conference had to be in the building before that time, though the contractors had not yet turned the building over to the Treasury Department; the heating plant had not been tested; there were no telephones or lights, and, of course, no furnishings of any kind; and workmen, including interior finishers and equipment men of all sorts, were swarming over the building. In spite of these difficulties, the building was made ready and proved a magnificent headquarters for the 3,600 delegates who attended the Conference.

The Conference on Home Building and Home Ownership was announced by President Hoover on Aug. 30, 1930. Its primary purpose was to bring out the facts—to determine what are the factors that influence housing, how they act and how they are interrelated, what evils exist, what influences limit the spread of home ownership, and to suggest means for overcoming them.

The President appointed Secretary Lamont, of the Department of Commerce, and Secretary Wilbur, of the Department of the Interior, as co-chairmen, and the writer, who organized and for several years headed the Division of Building and Housing in the Department of Commerce, as executive secretary. A Planning Committee was set up to organize the Conference.

The President and his advisors were of the opinion that the best way to get at the facts was to organize into committees all those engaged in one way or another in the activities affecting housing. Thirty-one committees were, therefore, formed and set to work in the course of 1931. The membership of each committee represented as fully as possible all the interests most concerned in the particular phase dealt with. For example, the Committee on Industrial Decentralization and Housing included, besides manufacturers, representatives of labor and of the Government, real estate men, statisticians, industrial relations experts, city planners, representatives of merchants associations, railroad men, economists, and sociologists. The 540 committee members served without pay. Funds for research, printing and binding were privately provided.

The data collected by each committee and checked against the combined experience of the committee members, plus recommendations based thereon, were incorporated in a tentative report which was presented to the Conference. Each committee held a separate meeting and in addition there were two general meetings.

The delegates to the Conference numbered nearly 3,600, representing every State in the Union and Territories as far away as Hawaii and Porto Rico. These delegates came to Washington at the special invitation of President Hoover. They included State and municipal officials, civic leaders, and representatives of all the groups whose activities in any way affected housing. In addition to the land and construction interests—realtors, subdividers, architects, builders, manufacturers, and dealers in lumber, brick, stone, concrete, tile, and what not, manufacturers of equipment and furnishings, carpenters, masons, plasterers, plumbers, and the other trades—there were the financing interests, including bankers, building and loan executives, and insurance men; there were the engineers—civil, mechanical, electrical, and sanitary; there were landscape architects, city planners, utilities men, building inspectors and other Government officials, traffic authorities, tax experts, and economists; there were home economists, and decorators; there were, in addition, sociologists, psychologists, doctors, lawyers, educators, and editors; and finally, there were a few—because there are only a few—housing specialists.

The pooling of so much experience to discuss and evaluate so much information is without precedent in the history of housing. It revealed for the first time the immense scope of the subject as well as its organic unity. City planning and home financing, architecture and home economics were discovered to be different aspects of the same problem. The immediate result of the Conference was undoubtedly to stimulate the active interest of the mortgage bankers, for example, in city planning and zoning, in home information centers, and in construction; the active interest of architects in small-home construction, in the activities of the subdivider, in the needs of the housewife; and the active interest of city planners in architecture and construction—to mention only a few of the many groups.

The ultimate result to be looked for from the Conference is the transformation of housing activities from its present rule-of-thumb character into a scientifically organized activity. That means the organization of communities according to an intelligent plan in which business and industry, traffic and recreational facilities all bear their proper relationship to homes. It means the cheaper and easier financing of homes by better organization of credit facilities and by an improvement in the safety of homes as an investment. It means also the application of the findings of science to home construction as they have already been applied to office construction. To bring about such transformation on a large scale demands organization. The Conference supplied the principles upon which it can be done.

The Conference indicated the direction which it wished subsequent action to take in the two resolutions passed at the last general meeting. One of these expressed active support of President Hoover's proposal to establish 12 Home Loan Discount Banks; the other recommended that the work of the Conference be carried on by a Continuing Committee.

A skeleton executive staff continues to be housed in the Commerce Building, digesting and editing for final publication the Conference reports and preparing the future organization.

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National Committee On Wood Utilization

By Axel H. Oxholm, *Director*

A DEADLY war on wood waste has been waged for several years by the National Committee on Wood Utilization of the Department of Commerce, the troops being men, women, and even children, in every walk of life, cooperating with the Federal Government in the orderly development of the country's forest industries and the regeneration of the forest resources.

Through the efforts of the Committee, improved manufacturing practices are demonstrated and put into practice. New construction methods are studied, wood products are standardized, specifications are simplified and waste is combated all along the line. This work may take place in the form of promoting the use of a nonsplit nail, and a wood preservative protection against insect and decay, stimulating better furniture construction, and sponsoring the conversion of sawdust into composition products.

The Committee shows how waste lumber, or an empty box, may be converted into any one of more than 1,000 useful home and outdoor articles, plans and designs for which have been developed and published in a series of booklets, the latest of which is entitled "You Can

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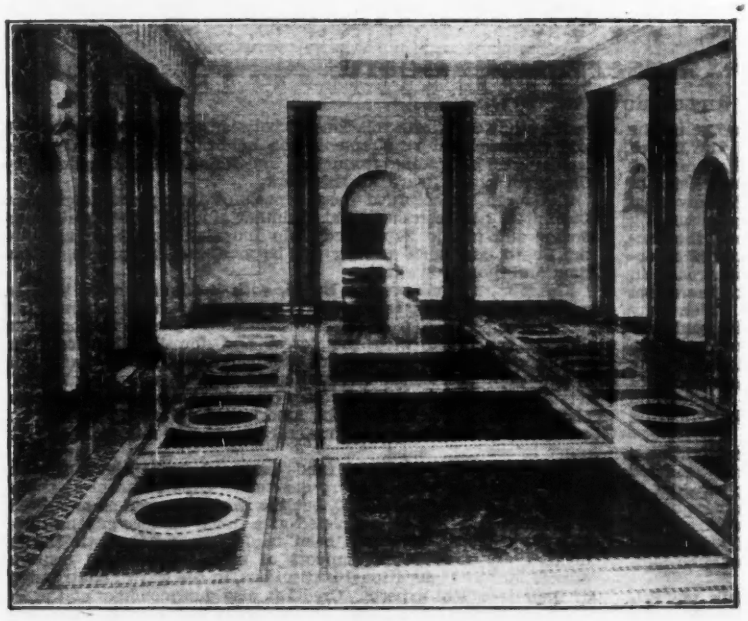

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Make It for Profit." It also shows how wood waste may be converted into a variety of insulation materials. A new publication on this subject is entitled "House Insulation: Its Economies and Application."

Shoddy construction methods are combated, and engineers, architects and builders are shown how to get the most out of wood products. The Committee is interested in the promotion of fire prevention methods, so as to protect human life and property.

Every phase of wood utilization in its broadest sense is considered, resulting in more comfortable homes, more substantial construction, less waste of raw materials, with a consequent decrease in the drain on forest resources.

Through the activities of the Committee, everybody is benefited—the consumer, distributor, and manufacturer. The millions of men and women who are practicing good wood using methods are furthering the Committee's slogan—"When You Use Wood, Use It Intelligently." This in turn helps to accomplish the task of placing reforestation on a commercial basis, by making tree growing an industry just the same as the raising of any other agricultural crop. The more of a tree that may be put to useful purposes, the greater will be the incentive to grow another tree.

Other Committee booklets designed to stimulate intelligent wood-using practices include "Furniture: Its Selection and Use," "How to Judge a House," "Treated Lumber: Its Uses and Economies," surveys of nonutilized wood in North Carolina, Virginia, and Maryland, and others. All of the Committee's publications are distributed on a sales basis and may be obtained from the Superintendent of Documents, Government Printing Office, as well as from the district offices of the Bureau of Foreign and Domestic Commerce in the principal cities.

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Federal Employment Stabilization Board

By D. H. Sawyer, *Director*

FOR a decade or longer efforts have been centered, on the Congress in particular, to prevail upon public officials to recognize the advantage of releasing improvements as a measure of relief to unemployment. The lull in industry gave impetus to the movement.

Lack of advance planning of public works and the necessary preparatory stages to place enterprises quickly on the market during the present depression revivified the earlier efforts and the creation of the above Board at the last session of Congress was the answer.

Its fundamental duty is "to cooperate with the construction agencies in formulating methods of advance planning." Something over 100 agencies of the Government and the District of Columbia concern themselves with construction and maintenance. These are called upon to express their judgment as to the projects which they deem expedient to be constructed in each year of a six-year program. This information not only contemplates the estimated cost of such enterprises, but the consequent expense of maintenance and operation as well. It likewise provides for a revision of the program annually.

Another feature of the Board's activities involves the assembling and study of "the trend of employment and business activity" in order that, as far as possible, the presence or approach of periods of depression may be known. The possession of this information will enable the Board to make recommendations which may result in the release of improvements planned in advance for the purpose of relieving unemployment.

Still another phase of the Board's work relates to cooperative measures with States, counties and municipalities in an endeavor to keep them informed as to the processes which the Federal Government is employing and, if possible, through the power of example encourage their duplication by these units. In normal times public construction amounts to approximately three billion dollars a year. Hence, the tremendous advantage is easily appreciated of having public works planned in an orderly way and made responsive as a remedial measure should National, State, or local emergencies necessitate putting men to work.

The Board has progressed far enough to justify the legislation and expects to render a public service destined to accomplish worthy results.

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United States Section—Inter-American High Commission

By M. H. Bletz, *Assistant Secretary*

THE International (later called Inter-American) High Commission was created by the First Pan American Financial Conference, a meeting of ministers of finance, distinguished economists and financiers of the American Republics held in Washington in 1915 to consider the serious economic problems affecting these nations which arose as a result of the outbreak of the Great War. The Commission was designed as a permanent organization whose principal object would be to study the economic problems of the American Continent and to formulate practicable solutions therefor.

The Commission—composed of 21 national sections, each with the respective secretary of finance as chairman, and a membership of eight outstanding financiers and economists—held its first general meeting at Buenos Aires in 1916. In the case of the United States, although the Secretary of the Treasury is honorary chairman, since 1920 the active chairmanship has been vested in the Secretary of Commerce.

At the Buenos Aires meeting the direction of the activities of the Commission was entrusted to a central executive council, to be composed of the officers of the national section in the country chosen, by vote of that meeting, as headquarters for the council. Washington has since been the seat for the council.

The council keeps informed of action taken in the member countries which affect the program, acts as clearing house for information, and serves as an intermediary between the national sections. It publishes and distributes studies of an economic character; establishes contacts with similarly interested organizations; and initiates studies and activities that in any way may relate to the program or to the principles upon which the Commission is founded.

The Commission concerns itself primarily with bringing about uniformity in the commercial laws and administrative regulations of the American Republics. It assists, too, in the formulation and effectuation of programs of the international conferences of American States and associated Pan American congresses or committees, in so far as they bear directly on the purposes and work of the Commission. It cooperates with governmental departments and agencies interested in the promotion of inter-American relations.

Some of the specific subjects upon which the Commission has been actively engaged are bills of lading, bills of exchange, checks, laws governing organization of corporations and operation of foreign corporations in American Republics, trade marks, patents and copyrights, uniformity of customs regulations, shipping documentation, port dues, marine insurance, commercial aviation, arbitration of commercial disputes, and standardization.

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Timber Conservation Board

By Ripley Bowman, *Secretary*

REPRESENTATIVE of the interests of the general public, of the Government, and of the forest products industries, the United States Timber Conservation Board, appointed by the President in December, 1930, has progressed far toward the completion of the program laid out to be finished by June 30, 1932. Already final drafts of various sections of its report are in process of preparation.

Functioning under the chairmanship of Robert P. Lamont, the Secretary of Commerce, the Board was charged with the task of ascertaining the important facts of production, condition, and trends in the forest industries, analyze and interpret them, and develop therefrom a recommended program of public and private action, which may secure and maintain an economic balance between production and consumption of forest products and a deliberate plan of forest conservation.

Studies of economic phases of the forest products industries, including inventories of forest resources of the Nation; character and policy of ownership and marketing; economics of distribution; and Federal and State laws, including taxation, pertaining to forest products industries, are all included in the scope of the Board's work.

In Project I of its program, the Board now has under consideration a "Special Report" covering the forest resources of the country rendered to it by the United States Forest Service. Carefully compiled data of this report, when considered by the highest technical authorities of the country who are cooperating in the work of the Board, will result in a clear-cut, comprehensive picture of the present and potential forest stands of the Nation. This section of the Board's report should be completed within the next six weeks.

The second project of the Board, dealing with the details of "Privately Owned Timber" and forest products operations is well under way and it is expected that a preliminary report will be submitted to the Advisory Committee as a whole in the very near future.

Report of the advisory subcommittee on Project III, "Publicly Owned Timber," has already been submitted to the Board and the final draft for this report is now before the Board for consideration.

Projects IV and V, dealing with the stabilization, distribution, and marketing methods of the forest products industries, are still in the hands of the advisory subcommittees. However, they will be submitted to the Board for consideration at a very early date.

One of the most important of the Board's projects is that pertaining to taxation of the forest products industries and timberland. As intensive a study as possible within limited time has been made of this subject, in which the Board has had the cooperation of many well-qualified economists and specialists, as well as many leaders of the forest products industries. Based on a wealth of data, the final draft of the Board's report in this project is now in the hands of the individual members for their study.

The seventh project of the Board pertains to a summarization of its findings and naturally will be the last project to receive attention. The advisory subcommittee handling this project is admirably qualified to pick up its work at the proper time.

Supplemental to the work covered in its original program the Timber Conservation Board has made available to the public, quarterly, a report of a special Lumber Survey Committee, which has assisted them in the study of current relationship between production, stocks on hand, and contemplated requirements for lumber. This special committee is composed of leading economists and industrialists appointed by the Chairman of the Board for this work.

The reception accorded these reports of the special Lumber Survey Committee has been such that a similar study of the Naval Stores Industry and of the Paper and Pulp Industry have been requested of the Board, and such activity will be arranged, if possible, within the time and monies available.

The Timber Conservation Board, with headquarters in the Department of Commerce, is privately financed by contributions, both in money and services, from the industrial and conservation organizations directly concerned with the forest and forest industries situation. Among those contributing are the Charles Lathrop Pack Forestry Foundation, the Society of American Foresters, representative of conservation and professional forestry organizations; the National Lumber Manufacturers' Association; the American Pulp and Paper Association; certain educational foundations, certain of the railroads, and various other interested groups.

The minimum amount of funds expected from private contributors in order to satisfactorily carry out the Board's program at the beginning was estimated at $40,000, but the work has been so organized that it is believed it will be completed at a much smaller expenditure than was anticipated. This has been made possible through the wholehearted cooperation and support of several trade and conservation associations and educational institutions, in the way of contributed time of their technical experts. Credit is also due members of the Board's advisory committee, as well as the Board membership itself, and the various trade, professional and educational organizations represented by the advisory committee and Board members.

The only expense borne by the Government is that incurred by the loan of the Board of office space in the Commerce Building, by the contributed time of experts and specialists in the various governmental departments, and by other Government facilities.

Secretary of Commerce R. P. Lamont was appointed Chairman of the Board, and all of its activities are being carried out under his direction. Other members of the Board, as chosen by the President, are:

Arthur M. Hyde, Secretary, United States Department of Agriculture; Ray Lyman Wilbur, Secretary, Department of the Interior; William M. Ritter, representing the manufacturers of hardwoods; John Henry Kirby, president, Kirby Lumber Company, representing the manufacturers of softwoods; John W. Blodgett, president, The Blodgett Company, Ltd., representing the owners of timber lands; D. C. Everest, president, Marathon Paper Mills, representing the pulp and paper industry; Dr. John C. Merriam, president of the Carnegie Institution; Paul C. Redington, member of the Council of the Society of American Foresters; Louis J. Taber, Master of the National Grange, representing the agricultural interests; Carl Gray, president of the Union Pacific Railroad; Charles Lathrop Pack, president of the American Tree Association, and founder of the Charles Lathrop Pack Forestry Trust; and George D. Pratt, president of the American Forestry Association. The Board is, therefore, thoroughly representative of all public and industrial interest.

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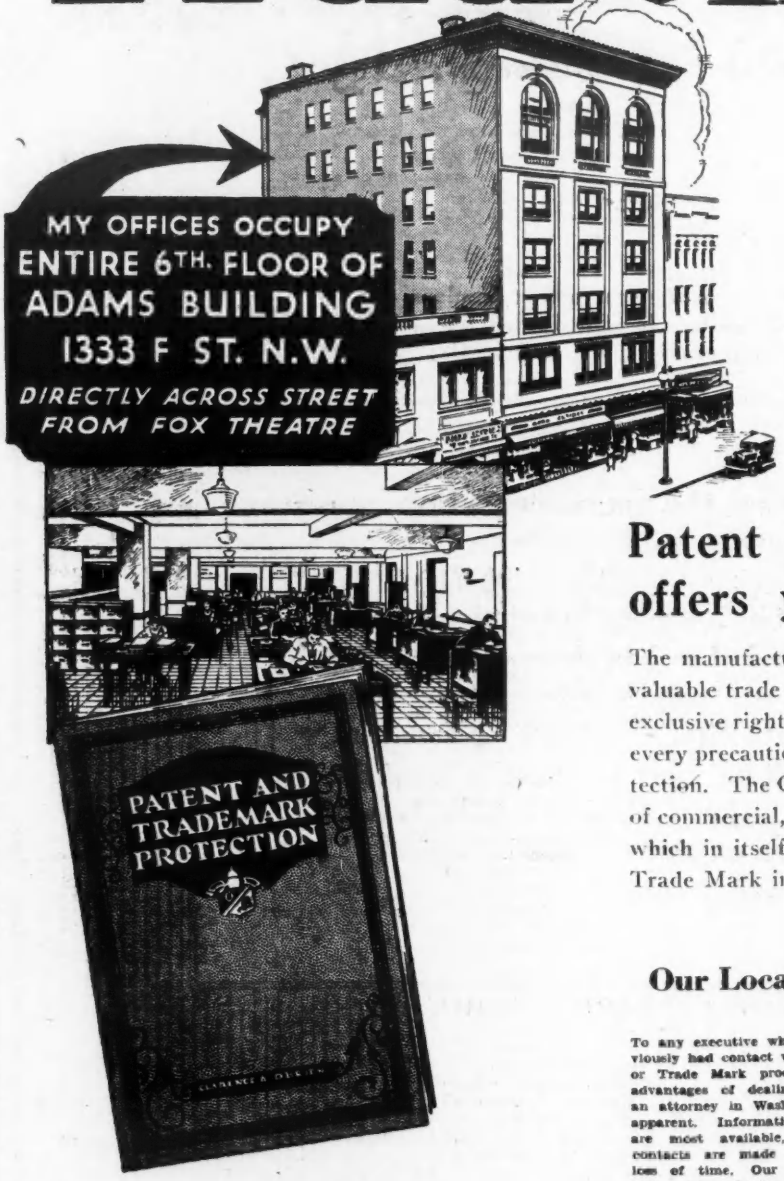

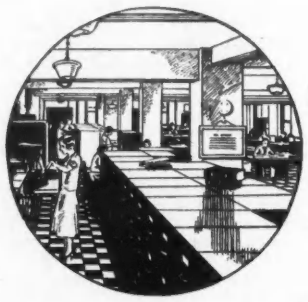

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